

FINANCIAL LITERACY EFFECTIVENESS IN CENTRAL TEXAS

A Thesis

by

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ABSTRACT

Many psychological and social factors influence financial behavior. Changing financial behavior requires teaching behaviors, as well as content. Evaluation of financial education programs now focus on behavioral modifications made, rather than changes in recitative knowledge. Financial literacy and financial education programs are widely used in the cooperative extension system to promote stability and consumer welfare. Wi\$eUp is a program offered by Texas A&M AgriLife Extension Service to increase savings and decrease debts. Wi\$eUp was designed with Generation X and Y in mind and was offered to thousands of participants both online and through classroom sessions. Using 125 final surveys of participants who took the course, collected three months after completion, we study the changes made by participants who took Wi\$eUp's savings and debt modules. From these surveys reporting changes in behavior we find that, holding other factors constant, debt behavior changed significantly with Wi\$eUp participation in the module on debt. Participants who took both debt and savings modules had the highest gains in healthy debt behavior. Gains in healthy savings scores were not statistically significant, but participants who received both debt and savings education modules did score higher than single-module participants. Savings behavior appears to be not as malleable as debt behavior, potentially because of the psychological nature of saving and the need for a longer timeline. Highest level of education attained before Wi\$eUp also contributed significantly to changes in behavior.

DEDICATION

To Dr. Alan Barreca, who taught me that economics was more than a class.

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1. INTRODUCTION

Financial literacy's effectiveness has been a topic of contention in academic literature (Olen 2012; Willis 2008). Financial literacy should effectively bridge the gap between what consumers know how to do and want to achieve. But even in the presence of financial education, many consumers do not spend their money in the way that utility-maximization would seem to prescribe (Campbell 2006). Because of this, some believe financial literacy and education are not effective at bringing about changes in knowledge and behavior (Willis 2008). At the same time, there are those who believe that financial literacy helps consumers save more (Mandell 2009) and makes financial markets run efficiently (Bernanke 2006).

Consumers learn about money in multiple ways: in the family setting, through the media, and from formal financial education. Financial literacy education takes many forms: mandatory high school classes (Mandell 2009), individual settings where a person works by himself with support from Agriculture Extension agencies (O'Neill 1999), web-based resources and financial literacy games (Visa 2013), and in-classroom settings for adults (Bauer *et al.* 2011) to name a few. Different audiences may have different financial goals, and their education should reflect that. Financial literacy should provide the right tools for the right tasks (Braun, Kim, & Anderson 2009).

Are financial literacy efforts effective or ineffective and does the answer depend on how the material is presented? Defining financial literacy is the first step to measuring it, but is financial literacy recited knowledge or repeated behaviors? Money

management takes both intellect and effort. Financial literacy that only teaches the “what” of personal finance and neglects the “how” and “why” does not give the student tools to implement their knowledge. The goal of financial literacy is to improve life outcomes through encouraging healthier financial behaviors. Measuring only recitative knowledge fails to take into account the *behavioral* aspects and is an incomplete measure (Carpena, Cole, Shapiro, & Zia 2011).

The knowledge component across different financial education courses is similar (Bauer *et al.* 2011; Braunstein & Welch 2002; Money Smart 2013; United States Department of the Treasury 2003). Savings, debt, and investing are shared experiences across all financial education, but behavioral aspects for implementing this knowledge differ with the audience (Lusardi & Mitchell 2008). Educational materials change to offer the appropriate tools to manage debt and savings, whether these are informational or behavioral. Agencies attempt to produce targeted material that is immediately relevant to its audience. One example of this is Military One Source (2013), an online website offering multi-modal information channels. In addition to straightforward articles on budgeting, saving, investing, and other topics, the site offers calculators, audio files, and links to other web sources. The wide variety of materials helps learners find the information they want in the manner in which they learn best. While some of these resources are military-specific, many are just as useful for civilians. Financial education may have some specific applications that differ for populations, but the broad emphasis of planning, saving, investing, protecting, and consuming wisely are applicable to everyone (United States Department of the Treasury 2003).

1.1. Introduction to Wi\$eUp

Wi\$eUp is a goal-based form of financial education targeting Generation X and Y women. Specifically, the program equips participants with the tools and behavioral skill sets to decrease debt and increase savings (Granovsky 2010). Wi\$eUp is explicitly engineered to attract the media-savvy (Granovsky 2012). Courses are offered online and in-person and feature visual aids and multiple modalities of engagement. Nancy Granovsky, professor and family economics specialist at Texas A&M AgriLife Extension Services, developed the materials over years of research in partnership with the United States Department of Labor Women's Bureau. Both forms of presentation come from a series of 2003 focus groups that sought to create realistic financial education that took into account the needs, interests, and preferences of this age group. The engaging and attractive materials present information, stories, and worksheets to help participants solidify their understanding of the module and plan for the future.

Wi\$eUp is constructed to closely reflect the needs and preferences of its students. Mandell (2009) argues that financial literacy can be made more effective if it is applicable to one's current financial circumstances. Financial literacy materials should be tools that leverage the audience's current experiences and culture rather than fight against them (Thaler & Sunstein 2008). Wi\$eUp does not attempt a diatribe against millennial culture of online media consumption and informality. Wi\$eUp instead leverages "point and click" culture; it is available online, offers links to reputable web sources where participants can learn more about their finances, and offers interactive online tools. Wi\$eUp uses the vernacular to promote fiscal responsibility, not to permit

irresponsibility; on page 8-9 the “bucket list” is repurposed as an important part of estate-planning. Knowledge changes can occur in any environment. Behavioral changes are harder than knowledge changes because behavioral changes must take place in an environment that may be constructed to support pre-change behavior, rather than changed behavior (Thaler & Sunstein 2008). If changing behavior meets environment resistance then behavioral changes will be more difficult to make (Campbell 2006).

Wi\$eUp began offering the course online and with partner agencies in the early 2000s. To assess the program, Wi\$eUp presented participants with a pre-test (immediately before they encountered the material), a post-test after completing each module, and a post-post (final) test about three months after completing the course.¹ The questions on the final test all focus on behavioral changes, such as increased savings and reduced debt. Participants are asked about saving habits: Do they save for retirement? Invest in a 401(k)? Plan for the future by having an emergency or rainy day fund? Participants are also asked about their debt habits: Have they reduced their total debts? Do they pay their credit bills on time and in full? Participants are also asked about their general financial habits, like shredding sensitive papers, keeping track of account contact information, and what sorts of continuing financial education they plan to pursue. The pre- and post-test questions can all be found in Appendix B.

¹ Originally, participants received the final survey six months after the course; however, due to attrition, the period was changed to three months shortly thereafter (Granovsky 2013).

Since the inception of the program in 2004, nearly 23,000 participants have been enrolled in Wi\$eUp either as online course participants or in community-based workshops. Over 900 participants completed all evaluation instruments.

1.2. Study Goals

This study evaluates self-reported changes in behavior from Wi\$eUp participants enrolled in community workshops that taught the program's debt and savings modules. Wi\$eUp was created to increase savings and decrease debt in participants. The mean American consumer, according to a 2012 US financial capability report is unable to come up with \$2,000 to cover an emergency expense (Lusardi 2008a). Utility maximization would predict that economic actors should take new information from financial literacy courses and thereafter save and leverage debt wisely. Empirical results on financial education show a much more nuanced response than theoretical models- noting that participants in various programs have not always changed their spending patterns (Thaler & Sunstein 2008).

The goal of this study is to examine and evaluate Wi\$eUp participants' changes in financial behavior. This purpose of this paper is to identify the changes in behaviors resulting from participation in Wi\$eUp, notably:

- For participants who completed the module on debt and the final survey, what behavioral changes related to debt have occurred? The initial hypothesis is that participants who have completed the module on debt

answer “yes” to a greater number of debt behavior questions than people who only took the savings module.

- For participants who completed the module on savings and the final survey, what behavioral changes related to savings have occurred? The initial hypothesis is that participants who have completed the module on savings answer “yes” to a greater number of savings behavior questions than people only took the debt module.
- For participants who completed the savings and debt modules and the final survey, what changes in financial behavior can be seen, and are changes systematic in nature? The initial hypothesis is that people who took both modules will have a greater number of “yes” answers to both savings and debt behavior questions than participants who only took one module.

The remainder of the thesis is structured with the second chapter focusing on the relevant literature and reviewing potential complications in financial literacy efforts. The third chapter describes the methods of analysis and data. The fourth chapter discusses the results of the data, and the fifth chapter discusses implications and discussion of the data.

2. LITERATURE REVIEW

2.1. Introduction to Financial Literacy

At its heart, financial literacy transcends recitative knowledge (Braun, Kim, & Anderson 2009); the goal of financial literacy is to provide the knowledge not only of what tools consumers can use to achieve their goals (Campbell 2006) but how to adjust to changing information and new goals (Braun, Kim, & Anderson 2009). American consumers are navigating new financial realities which their grandparents never saw (Braun, Kim, & Anderson 2009). The twentieth and twenty-first centuries have seen changes in corporations, compensation and the social safety net (Lusardi 2008b). Expectations and behavior in personal wealth management have altered to reflect the new social realities (Olen 2012). Fox *et al.* (2005, p. 195) explains, “The need for financial education among Americans is often demonstrated with alarming rates of bankruptcy, high consumer debt levels, low savings rates, and other negative outcomes that may be the result of poor family financial management and low financial literacy levels.” It is important for people to have the necessary knowledge of saving, investing, and spending to navigate the stresses and changes of life.

Former chairman of the Federal Reserve, Ben Bernanke (2006), has hailed financial literacy as the savior of free financial markets and the most important tool in protecting consumers from macroeconomic stressors. Financial literacy has also been called ineffective (Mandell & Klein 2009), an ideology inconsistent with empirical evidence (Willis 2008), and a smoke-and-mirrors trick to distract legislatures from

regulating the banking sector (Olen 2012). While effective regulation is an important consumer protection, it is not the only way to help consumers spend and save wisely. Financial literacy is strongly correlated with positive life outcomes and is an especially important field of study during times of economic instability when unemployment and fragile social safety nets increase the importance of self-sufficiency (Becchetti, Caiazza, & Coviello 2013).

2.1.1. What is financial literacy?

The federal government's Financial Literacy and Education Commission (2003) believes that through financial education consumers acquire the tools to avoid fraud, protect their assets, and build and save for future events. Throughout their lives, consumers face a variety of expected challenges: paying for basic living expenses such as food, transportation and shelter, medical bills for annual checkups and planned family expansion, college education and vocational training, and retirement. These expected events are full of complex decisions such as how many children to have or how to allocate retirement funds. But expected consumption is not equal to actual consumption. As Olen (2012, p. 234) notes, "Bouts of unemployment are not timed and their length cannot be predicted, crises from health-related emergencies to divorce do not announce themselves in advance, and, thus, are next to impossible to plan for." Family can greatly influence changes in spending. Surprise pregnancies change family financial dynamics, especially when a child has special needs. Aging parents may deteriorate unexpectedly. In these situations, regardless of preparation, consumers must take action to safeguard their family members' welfare. Financially literate consumers can navigate the expected

events and have the resources of financial and human capital to deal with the unexpected through emergency funds, insurance, and successful navigation of social and government support systems (Braun, Kim, & Anderson 2009). Financially illiterate consumers are more prone to make mistakes that adversely affect their welfare (Campbell 2006).

Financial literacy is more than just financial knowledge. Financial literacy is financial empowerment when what students, “Have learned helps them to improve their decision-making processes” (Becchetti, Caiazza, & Coviello 2013, p. 818). Financial empowerment comes when financially literate consumers employ behavioral strategies that complement their existing knowledge and maximize their household utility (Becchetti, Caiazza, & Coviello. 2013). This becomes human capital in the form of financial capabilities (Lusardi 2011). Financial capability exists at the intersection of volition and knowledge (Tough 2012). Knowing how a savings account works and having the behavioral discipline to save are two different skill sets that work in conjunction to allow consumers to achieve their goals (de Meza, Irlenbusch, & Reyniers 2008). Financial literacy, then, is not just rote memorization but the synthesis of tools, behaviors, and facts that allow consumers to translate preferences into concrete actions (Becchetti, Caiazza, & Coviello 2013).

2.1.2. Benefits of financial literacy

Financial literacy, in theory, helps prevent the exploitation of consumers by correcting information asymmetry (Mandell 2009). Financial literacy can help prevent consumers from making costly mistakes; for example, if consumers know about interest charges on

credit cards, they can avoid such charges by paying the balance in full. There are some compelling correlations between financial literacy and improved life outcomes (Schuchardt *et al.* 2009). Financial literacy is correlated with healthier financial decisions and behaviors like using a budget (Hilgert & Hogarth 2003; Federal Deposit Insurance Corporation, Division of Supervision and Consumer Protection 2007), better health (Braun & Anderson 2009), keeping families safe during income-shocks (Klapper 2012; Lusardi 2011), greater wealth (Gale & Levine 2011; Bernheim, Garrett, & Maki 1997), and freeing up money for more productive uses by banishing debt (Xiao *et al.* 2004). Financial literacy is so crucial that over half of the states in the nation have mandatory financial education in secondary schools (Mandell & Klein 2009). The Texas Education Code (2011) mandates personal financial literacy in mathematics courses for all students

It is difficult to tease out the lines of causality and correlation in financial literacy. Financial behavior, the most critical aspect to measure, comes from knowledge and attitudes, not just knowledge of facts and systems (de Meza, Irlenbusch, & Reyniers 2008). Behavioral characteristics are part of financial literacy: values like delayed gratification, skepticism, and preparation (Thaler & Sunstein 2008). These skills are behavioral patterns that can be applied across a variety of domains to increase well-being (Tough 2012). Financial literacy is termed “effective” when teaching new concepts and cognition patterns produces behavioral changes. These cognitive skills may be part of the reason why we see health and wealth increase with financial literacy (Gale & Levine 2011; Braun *et al.* 2009).

2.1.3. What does financial education in America look like?

Financial literacy takes many forms in the United States: employer-based programs, community programs, school courses, and programs sponsored by financial institutions (Braunstein & Welch 2002). Each different form of financial literacy has its strengths, but at their core, each program seeks to improve cognitive capabilities and encourage smarter financial decisions by consumers (Braunstein & Welch 2002).

Employer-based programs have had some success at getting respondents to have confidence in their investing. If participants are given behavioral support in the form of being required to actively decline or actively invest in a retirement plan, then participants make better financial choices (Thaler & Sunstein 2008). Some academics believe that high school financial education courses can significantly improve financial knowledge (Walstad *et al.* 2010). School-based programs have had limited success at demonstrating that students significantly retained and demonstrated knowledge but have had some behavioral outcome differences in the form of greater saving and healthier financial behaviors (Mandell 2009; Bernheim 1997). Some studies have shown that in school-based programs children who receive financial literacy training, "...made a range of choices that are consistent with delaying immediate gratification to increase overall wealth" (Carlin and Robinson 2012, p. 4). There are corporate programs to increase consumer financial literacy. These programs take the form of websites, games, and articles to engage consumers in an emotionally satisfying dialogue about their money and its worth (Visa 2013).

2.1.4. Extension- and community-based programs

Extension agents in various land-grant universities offer financial literacy programming to meet the needs of their clientele. A wide variety of extension programs have sprung up in the past 20 years with different approaches to engage clients and promote healthy financial behaviors (Braunstein & Welch 2002). From Rutgers's highly individualized MONEY 2000 (O'Neill 1999) to Minnesota Extension's Dollar Works 2's culturally specific focus (Bauer *et al.* 2011), extension agencies are working to provide their clients with effective financial literacy.

2.1.4.1. Dollar Works 2

Dollar Works 2 is a curriculum designed by the University of Minnesota Extension services (Bauer *et al.* 2011). Originally created in 1997, it underwent significant changes to be linguistically and culturally appropriate for Hispanic audiences in 2007 (Bauer *et al.* 2011). Initial evaluations were promising, showing that participants in Dollar Works 2 had a better grasp of financial concepts as a result of the class and intended to commit to behavioral changes to apply their new knowledge to make smarter fiscal choices. (Bauer *et al.* 2011). One of the important aspects of Dollar Works 2 is the "Action Page" section of the lessons. Action Pages, "take learners from practice to application of financial concepts in their own lives and experiences," (Bauer *et al.* 2011, p. 2) by providing concrete realizable actions that apply classroom lessons to the quotidian. A similar concept is used for the assessment portion of Wi\$eUp. Each post survey requests respondents to set a specific financial goal and to describe the behavioral strategies they will employ to achieve this goal.

2.1.4.2. Money Smart in Texas

Money Smart is the Federal Deposit Insurance Corporation (FDIC) course that covers important financial concepts ranging from saving to spending, borrowing to earning, investing to protecting (2013). The Texas A&M Agrilife Extension Service began using the FDIC's Money Smart curriculum in 2004 (Family Development & Resource Management 2013). Evaluation has found that course participants, on average, have made important behavioral changes related to spending, saving, and financial service choices (Money Smart 2013). In an initial evaluation, more than a third of unbanked Money Smart participants opened a checking or savings account, more than 60% of those not using a budget made and followed one after the course with 95% of those people continuing to use a budget when surveyed 6-12 months later (Money Smart 2013).

Increased financial literacy is needed to combat the dire financial picture consumer surveys paint of Texas. Nearly two-thirds of Texans are without an emergency fund 2004 (Family Development & Resource Management 2013). Because of this nearly one in three Texans have had to utilize a high-interest short-term loan, such as a payday, to cover expenses within the past year (Family Development & Resource Management 2013). Extension has partnered with community organizations to offer Money Smart. As a result, "Since 2004, more than 1,000 Money Smart classes have resulted in more than 13,500 educational contacts. In 2012, five Texas counties made 2,242 educational contacts by conducting 193 educational sessions utilizing the Money Smart curriculum" (Family Development & Resource Management 2013). Texas A&M Agrilife Extension

Service evaluations indicate a significant increase in financial literacy and increased financial capabilities of participants.

2.1.4.3. Wi\$eUp in Texas

Wi\$eUp is a recent program, similar to Money Smart, that seeks to distribute information on finances to consumers (Granovsky 2010). The program was initially designed for “Generation X” women in partnership with the U.S. Department of Labor Women’s Bureau , but was amended to target both “generation X” and “Generation Y” women (Granovsky 2013). Wi\$eUp seeks to build “financial capability” and has been used by men, women, and a variety of age groups (Granovsky 2010, p. vii). Wi\$eUp utilizes a variety of innovative pedagogical tools. Some notable tools are:

- o “Steps to Wi\$ing Up”: guided exercises that focus emotionally and numerically on the participant’s unique financial situation.
- o “My Action Plan”: an end of chapter review by which a participant summarizes chapter content, formulates a goal related to that content, writes down an action plan, and sets a deadline for its completion.
- o “Wi\$eUp On-line Resources”: a website offering expert answers to common questions, access to the teleconference archives, and the Wi\$eUP newsletter.
- o “Real Life, Real Money”: stories of relatable women who have ignored or implemented the Wi\$eUp financial tools (Granovsky 2010).

The Wi\$eUp curriculum presents logos-type (facts and numbers that persuade a consumer to see the wisdom of financial capability) and pathos-type (the emotional,

hard-hitting stories of success and hardship that make the subject material matter personal) pedagogical tools together. Chapter 1 begins with a “Real Life, Real Money” segment about a woman who didn’t have insurance when her apartment burned down (Granovsky 2010). Both the emotional impact of the story and the content knowledge (insurance is useful to protect against calamity) are immediate. Wi\$eUp has content available, via its website wiseupwomen.org, and the entire course can be taken online as well as in person (Granovsky 2010).

2.2. Concerns in Financial Education

Annamaria Lusardi has written extensively about poor financial practices in America. She finds that women, minorities, and youth face disproportionate lack of knowledge about money and smart financial habits (Lusardi 2011). But this problem is not exclusive to historically disadvantaged groups. Most Americans are ill prepared for the expected milestones of life (children, retirement, and education), much less the unexpected turns in fortune like divorce, disability, unemployment and relocation (Lusardi & Mitchell 2008). In Lusardi and Mitchell’s 2008 survey on women and retirement, they found that less than one third of respondents could correctly answer basic questions on saving, compound interest, and investing. Braunstein and Welch (2002) report that many consumers have taken on imprudent levels of debt, which make them vulnerable to macroeconomic shifts. This environment of poor financial practices makes education difficult because education is no longer just about teaching practices, but also must include overcoming these practices. Furthermore, even when financial education is

successful, evaluation can be difficult to do (Gale & Levine 2011) and standardized best practices are still emerging (Lyons *et al.* 2003).

2.2.1. Challenges for financial educators

One of the challenges for financial educators is that financial education has a two-fold mandate: to impart information and to promote specific behavioral changes (Becchetti, Caiazza, & Coviello 2013). Students should learn, remember, and apply the material. These competencies can vary greatly across domains. Mandell (2009) found that, *ceteris paribus*, students who took courses in financial literacy were unable to score better on financial literacy tests than students who had not taken any such course. He believed that timing was crucial for financial education. Students who are unable to apply their knowledge to their lives lack crucial context and fail to remember the important lessons of credit, interest, and financial capabilities (Mandell 2009). Even when educators teach the concepts and students can demonstrate their knowledge, student behavior doesn't necessarily change (Carpena *et al.* 2011). Why doesn't behavior change? Hathaway and Khatiwada (2008) believe that behavioral preferences for procrastination or short-horizon time preferences can prevent students from applying financial literacy unless they are supported by cognitive-behavioral modification.

2.2.2. Evaluation

Evaluation is what separates the anecdotal from the empirical. Financial literacy evaluations, when properly done, can help pinpoint the existing links on the causal chain that need reinforcement to produce better outcomes. Financial literacy evaluation is essential to support best-practice propagation (Jacob 2002). Through rigorous

evaluation, educators can determine the extent of their program's impact and make the case for further expansion of the program (Jacob 2002). When a program influences behavioral change, that program deserves to be replicated and more closely examined. Conversely, evaluation can pinpoint weak spots in a program and help prune programs that are an ineffective use of funds (Jacob 2002). A prime example is high school financial literacy mandates. There is some evidence for these courses producing changes in long-term saving rates but scarcer evidence that they produce quantifiable gains in knowledge (Mandell 2009; Mandell & Klein 2009). Evaluation for financial literacy is compounded in difficulty by ethical issues, inconsistencies, and Heisenberg's caveat that observation influences the observed. Fox, Bartholomae, and Jinkook (2005, p. 200) note that more "rigorous evaluation and reporting" are not the standard in financial education and that the field at large would gain from such actions. Financial literacy evaluation in the past focused on demonstrated knowledge (Mandell 2009), but recent guidance for evaluations suggests shifting the focus to behavior changes as a result of financial education (Messy & Atkinson 2012)

2.2.2.1. Statistical concerns in evaluation

Gale and Levine (2011) draw attention to the difficulty of evaluation design and engaging respondents. Various financial literacy programs have been evaluated, however due to various difficulties, "much of the literature is marred by econometric concerns that make reliable inference difficult" (p. 3-4, Gale & Levine 2011). Some of the key difficulties are:

- Insufficient number of participants: some programs have very small numbers of participants in the evaluation making it harder to determine if results are a result of chance and maturity, or if there is a significant change (Mandell 2009; Willis 2008),
- Reporting bias: most evaluations require respondents to self-report (Lusardi 2008a) which can mean respondents “consciously or unconsciously exaggerate their behavioral change after [financial literacy education]” (Willis 2008, p. 4). Participant responses can also be poor because of weak memories (Willis 2008), and
- Selection bias: Many times there are no control groups or randomization in financial literacy course evaluation (Gale & Levine 2011). It is possible that people participating in financial literacy courses have different behavioral and psychological profiles than the average consumer (Willis 2008).

2.3. Areas for Potential Improvement

The federal government synthesized many comments from practitioners on the need for improvement in financial literacy teaching and best practices in their Financial Literacy Commission report (2004). Inger Giuffrida (2000) wrote a brief on the most important parts of planning, implementing, and evaluating financial literacy classes. The eight elements (Giuffrida 2000, p. 1-7) are:

1. A Skilled Facilitator
2. A Well Planned Training Tied to Behavioral (Participant) Objectives With
A Focus on Application
3. Content Relevant to Your Audience
4. A Training Based On and Reflective of the Principles of Adult Learning
5. A Training that Balances the Diverse Realities of Multiple Learners
6. An Adult-Oriented and Accessible Location
7. A Training Schedule that is Respectful of the Needs of Your Audience
8. Training that Includes Evaluation

These recommendations relate mostly to pedagogical philosophy and practice. They reflect the educational aspect of classroom time. But students do not spend a great deal of time in the classroom compared with the time they spend with family or at work. Effective learning will help students engage beyond classroom walls.

Desire to change is insufficient; people change when their environment supports the change they are making (Thaler & Sunstein 2008). Social environment, therefore, is one of the best avenues for behavioral changes. Consumers have goals and live in a social environment with unique challenges and opportunities (Abroms 2008). These environments can be leveraged to assimilate knowledge into behavior (Altman 2012). Collins (2010) notes that household finance decisions are based on emotion and habit as well as logic and planning. Increasing financial capability involves changing behavior (Lusardi & Mitchell 2008). Financial educators can use attitudes, goals, and social environments to bolster participants' financial capability. Wi\$eUp's action pages offer

specific ways to change participant environment, such as bookmarking financial pages on the computer and talking about finances with family (Granvosky 2010).

2.3.1. Resources for financial educators

Giuffrida's (2008) first recommendation is "a skilled facilitator." Financial educators may not be certified experts in the material but still need to impart information to their clients (Giuffrida 2000). Building teacher confidence is essential, and there are a number of excellent, free resources to help educators bridge their own knowledge gaps.

Educators may need more information on banking and financial literacy, but may also want data on American consumers and wide-spread trends. Government agencies and financial empowerment NGOs exist to help bridge that gap. In addition, many of these resources are online and can be widely distributed without violating copyright laws (Federal Deposit Insurance Corporation 2013).

The FDIC's Office of Communications offers free resources. Money Smart's online modules are all free and accessible, and the CD-ROM educational materials ships for free anywhere in the United States. Wi\$eUp offers its entire curriculum online free of charge. Computer access and internet access might be an issue for some consumers, but as File (2013) notes, internet access is becoming increasingly available due to the advent of cheaper smartphones. Smart phone applications (apps) such as Visa's (2013) suite of financial education games present financial education. Visa (2013) isn't the only firm to offer financial literacy smartphone apps. In 2013 FinCapDev, the Financial Capabilities Development Contest asked developers to create smartphone apps that helped people expand their financial capability. One winner received a \$100,000 prize, but all ten

finalist apps were available for download. Apps have made financial literacy access potentially easier for those with only a smartphone. Not every home has a computer with internet access (although that percentage is declining), computer access is no longer based on the binary "computer in home" or "not computer at home" (File 2013). People who do not own a desktop computer may still have access to the internet or a computer (such as at the library or through work) and use it frequently to access information (File 2013). Financial educators can easily find access to a wide variety of low-cost resources to inform consumers.

2.3.2. Attitudes

Willis (2008) noted that consumers who see the world through the lens of practicality or skepticism might be less vulnerable to fraud. These so-called "financial norms" are not specific facts to remember or benchmark figures to emulate but are attitudes toward money. Teaching with norms, rather than specific numbers, makes finances easier to grasp for those who have difficulty with numeracy skills (Karlan & Appel 2012). Thaler and Sunstein (2008, p. 22) call norms and rules of thumb the "Automatic System" and argue that, "if people can rely on their automatic system without getting into terrible trouble, their lives should be easier, better, and longer." Rational humans use their automatic systems to accomplish tasks quickly and efficiently, since the opportunity cost of intensive mental calculations of time may not be worth the effort (Kahneman 2011; Thaler & Sunstein 2008). Both the intensive and automatic process calculations result in the same action: responsible decision making that takes opportunity cost into full account. Financial education can seek to apply knowledge by changing the emotional,

automatic response to issues of money. Goals are one method of doing so. Giuffreida's (2000) second step, "A Well Planned Training Tied to Behavioral (Participant) Objectives with a Focus on Application" is directly related to goals. Attitudes towards money and finances are the most direct way of applying knowledge.

Emotional judgments and snap judgments aren't necessarily problematic. They are useful in a world of complexities and asymmetries (Campbell 2006). Emotion colors judgment because it allows agents to surmount the obstacle of imperfect information (Altman 2012). Fogel (1984), writing of cliometrics, described the main factors for why humans make decisions based on emotion: there is no one right answer, there is not enough information to know for sure one has the right answer, or there is prohibitive opportunity cost to get the right information to prove one's answer.

"Not all questions have unambiguous answers. And many of those questions which in principle have unambiguous answers cannot be resolved because of the absence of crucial bodies of data, because the retrieval of some bodies of data are too expensive to be practical, or because the analysis of a given body of data poses problems that cannot be treated by the mathematical and statistical methods that have thus far been developed." (Fogel 1984, p. 6).

Bounded rationality uses emotion to surmount the paralysis of poor or insufficient information because "...emotions allow people to act smart without having to think smart" (Altman 2012, p. 679).

Emotions are part of decision-making, and emotions are the product of attitudes. An optimistic person, in broad terms, feels happy in the same situation where a pessimistic person feels discouraged. Can attitudes and worldviews change? Can they be taught, like other forms of human capital? Seligman (1990, p. 5) insists that attitudes are "new set[s] of cognitive skills." As such, attitudes are just as teachable as multiplication

tables. In a randomized trial of “positive psychology curriculum” Seligman concluded that optimism is teachable and that teaching it to students results in behavioral and outcome changes for the better (2011, p. 81-84). Metacognition (thinking about thinking) is a crucial part of behavioral change (Seligman 1990). Coaching can facilitate attitude change by offering support, accountability, and personalized assistance with challenges (Collins & O'Rourke 2012). Practice and reinforcement build character skills. Character is the fundamental variable in success (Seligman 2011).

2.3.3. Goals

Giuffrida's (2000) third recommendation is content relevant to the audience. The greater the personalization of a financial literacy educational experience, the better the chance that it elevates a student's financial capabilities (Martin 2007). Goals are specific, measurable, realistic, concrete tasks that are completed within a specific frame. They can help connect a student to the material and make the material relevant. Goals, when properly constructed, leverage intrinsic motivation to catalyze change (Tough 2012). Properly constructed goals have a specific support mechanism, the “if/then” plan (Tough 2012). Vague goals may fail because when the goal-maker hits adversity he has no contingency plan. Smart goal-makers prepare contingency plans, such as “If I receive a bonus at work, then I will put it into saving to start my emergency fund” or “If I am tempted to veer from my budget by nice clothes, then I will have a thrift-store outing with my children instead.” Behavioral goals that take into account the surrounding environment are working with the environment instead of against it. Goals are a way to follow Giuffrida's (2000) fifth recommendation of “Training that Balances the Diverse

Realities of Multiple Learners.” Goals, because of their individualization, can play to the strengths of each individual learner.

Goal-setting is couched in positive and realistic terms in Wi\$eUp chapter 2 (Granovsky 2010, page 2-14). The participant is first asked if she wants to improve her money skills. The goal of this question is not to produce a yes or no answer, but rather to motivate the student to feel personally invested in her money skills. Money skills are the necessary link between earning money and being financially secure. Participants are being asked if they want to be financially secure (an obvious yes). This is a framing technique that is intended to get the participant to think about the benefits of financial security, rather than the discomfort of behaving responsibly. Thaler and Sunstein (2008, p. 36) write that, “Choices depend, in part, on the way in which problems are stated.” By beginning this section with a simple motivational question, the entire action page is framed as positive and important. Emotionally motivated by imagining a financially secure future, the participant moves to the second question, which asks her to choose a goal for improvement: either to use the worksheets in the chapter (guided worksheets on setting goals) or to set realistic financial goals (for the more advanced user who has more-complicated goals). With a target in place and motivation to support it, the Wi\$eUp action plan now moves to support in the third question, asking what *specific support mechanism* the participant intends to use. The participant can choose a variety of options, all of which are appropriate to different types of learners. More introverted participants may prefer to use online resources, planners may want to write up their action steps, and the extroverts may choose to discuss their plans with a social network.

Regardless of the choice, the participant is asked to indicate a date of completion. This time constraint adds urgency that behavioral scientists suggest produces increased activity in achieving a goal (Steel 2010). There are a variety of suggested action steps to achieve the goal; none of these action steps are grandiose or require special information. Some are as simple as “putting my specific financial goals in writing.” This adds a quantifiable aspect to goal achievement; completing one of these suggested action steps offers a measurable step toward improved financial capability.

2.3.4. Social Environments

Giuffrida’s (2000) fourth recommendation is, “A Training Based On and Reflective of the Principles of Adult Learning.” One of the most important principles of adult learning is that knowledge is not isolated but rather integrated across domains. The greater reinforcement these different domains provide, the greater impact the knowledge will have (Thaler & Sunstein 2008). Consumers do not use money in a vacuum. Financial educators can leverage already existing social networks to create a buzz and provide an environment that reinforces communication about money (Abroms 2008). Financial literacy campaigns may be most effective when they are dynamic and emotionally impactful (Gale & Levine 2011). Financial literacy needs to be supported by networks: parents, colleagues, friends, and community members and “focus on interactions with[in] existing policies” and social structures. The MONEY 2000™ program at Rutgers did just that (O’Neill 1999). The MONEY 2000™ program asked individual participants to make a savings goal and then offered participants resources (classes, counseling, and information) to support the accompanying action steps (O’Neill 1999).

Then, participants were monitored and the results were aggregated and distributed to the public (O'Neill 1999). Each household was asked how much money they had saved; the total savings from each household were added together; and “within three years after the program was launched in New Jersey, 1,700 participants had enrolled and over \$3 million of financial progress (increased savings and reduced debt) was reported” (O'Neill 1999, p. 14). Suddenly, instead of small private victories, extension agents at Rutgers could issue press releases about real, life-changing numbers. The large numbers started the conversation, but continued individual-level stories sustained the statewide conversation. Participants in the program saw change in their own lives and research indicates that change is contagious when it comes to studying and knowledge retention (Thaler & Sunstein 2008). Participants may not be directly teaching their children what they've learned, but these new, good habits are being passed along.

Every parent who provides for a child is that child's first educator. Parents have a substantial influence on children's financial literacy (Martin & Olivia 2001). People who learn money skills early in life from their parents have better financial outcomes relative to people who did not receive such parental instruction (Grinstein-Weiss *et al.* 2010). Reading books, having an allowance, and making a point to have money discussions are all recognized as important steps parents can take to raise financially literate children (Martin and Olivia 2001). Martin and Olivia (2001) have suggested that financial literacy is not something that can be understood solely from a semester long class in high school. It requires repeated exposure and family support. Learning takes place gradually building on previous knowledge (Heckman 2012).

2.3.5. Evaluation

Giuffrida's (2000) eighth recommendation is to build evaluation into curriculum design. Evaluation in the field of financial literacy has been very non-standard, which makes sharing best practices confusing at best and waste-perpetuating at the worst (Fox, Bartholomae, & Jinkook 2005). Greater standardization of evaluations might result in better data for academics, but it could also shut down some existing financial education because of lack of resources (Lyons *et al.* 2003). Lyons *et al.* (2003) do not recommend a standardized approach to evaluating programs; it is unrealistic to expect grassroots organizations to have the necessary resources. Lyons *et al.* (2003, p. 232) write that, "In particular, the profession may want to reexamine the recent movement toward the use of control groups and follow-up studies and what this movement may mean for financial education providers who are strong in program development and delivery but may not have the expertise and resources to effectively show program impact." They propose redistributing funding to allow the strong programmers to outsource rigorous evaluation.

Many surveys adapt the Survey of Consumer Finance's questions on cash-flow management, credit management, saving, investment, and other financial experience (Hilgert & Hogarth 2003). Hilgert and Hogarth (2003) standardized the scoring of these questions. Evaluators can use their low-medium-high index for the different competencies in tabulating their results. This standard index can make understanding data from different programs much easier. While this approach is not standardized across the financial education field, practices such as easily understood index scores may help evaluators communicate more efficiently.

It is also important to remember the myriad of differences that may influence success in one community or another. Financial education participants vary greatly in different geographic and cultural contexts, and what may fail in one population may produce results in another population (Lyons *et al.* 2003). Financial education programs do not need to be all held to the same exacting standards of evaluation. Messy & Atkinson (2012) recommend guiding evaluation with the goal of maximum benefit to stakeholders (the people gaining from the new discoveries gleaned from the study) by

1. Building evaluation into the program design;
2. Involving researchers, facilitators, participants, and an outside perspective into evaluation development;
3. Making evaluations outcomes-focused; and
4. Using different data monitoring methods to maximize stakeholder benefit.

Messy and Atkinson's (2012) model offers considerable flexibility to the different types of organizations offering financial education. Although some organizations may be limited by means and scope, building evaluation into the program design ensures that mistakes and successes will be recorded and documented to provide even greater services to stakeholders in the future.

Taylor-Powell (1996), an evaluation researcher with University of Wisconsin-Extension, has written on the need for practical, systematic evaluation for extension programs. In her work, she recommends that program administrators use evaluation efficiently. While not every program requires evaluation, all evaluation requires purpose

to guide actionable items. Her worksheets for extension programmers focus on the following core areas:

- ☐ Purpose of evaluation;
- ☐ Stakeholders in the evaluation;
- ☐ Target behavior (not always easy to observe firsthand);
- ☐ Behavioral indicators related to the target behavior (which are observable);
- ☐ Methods of tracking behavioral indicators; and
- ☐ Methods of analyzing behavioral indicators.

Taylor- Powell (1996) recommends having a target behavior as the evaluation's central focus but having multiple culturally-appropriate behavioral indicators that connect to the target behavior. This target behavior should be the purpose of the entire program under evaluation. All the assessment should tangibly connect to the target behavior

Wi\$eUp's evaluation process integrates these recommendations. Before the first class was taught Granovsky planned a three step evaluation process which focuses on a pre-test to determine initial knowledge, immediate post-test to determine what effect education had and a final test 3-6 months later to determine what had actually been implemented in the long-term (Granovsky 2013). The purpose of the evaluation was to monitor the target behavior of better financial education through observable behaviors related to savings and debts. The evaluation focuses on behaviors and outcomes rather than whether the participant can successfully describe common portfolio allocation strategies or define inflation (Granovsky 2013).

3. METHODS

3.1. Logic Model

This study looks into the relationship between increased financial education in the areas of debt and savings and the effect, if any, it has on corresponding financial behaviors. As noted in Section 2.2.2., financial literacy evaluation is a multifaceted challenge (Mandell 2009; Willis 2008, Lusardi 2008b, Gale and Levine 2011). Although Wi\$eUp's dataset is small and non-random, there are methods of evaluation beyond familiar econometric tools to examine Wi\$eUp. In their definitive guide *Developing a logic model: teaching and training guide*, Taylor-Powell and Henert (2008) describe the role of logic models in the cooperative extension system (Extension). A logic model is useful when actors seek to produce results rather than merely activities. A logic model provides an explanation of the causal chain of a program, given a certain social environment and set of assumptions. Logic models provide a clear indicator of the scope of a program and focus the energies of those involved. Logic models have been used for close to 40 years in Extension. Logic models connect the inputs of time and other resources to welfare-enhancing outcomes and directly tie each step of the process to the desired outcome. Figure 1 is an example of the use of a logic model to structure this relationship between investments of time and capital and the end goal of happier, healthier, and better-off consumers. These inputs and outputs are not necessarily concrete objects; success is often explained in terms of thoughts, actions, and overall conditions (Taylor-Powell and Henert 2008).

Wi\$eUp's central goal is to increase the welfare of Extension clients by increasing savings and decreasing debts. Figure 2 is a logic model that was created for this study with input from Nancy Granovsky (2013). The logic model demonstrates how Wi\$eUp addresses the problem of debt and saving, beginning with the low rates of saving and debt, moving through the curriculum, and leading to changing attitudes and behaviors. Nancy Granovsky designed an initial logic model to guide the implementation of Wi\$eUp. The top section of Figure 2 shows Granovsky's logic model and chain of causality for Wi\$eUp, and the bottom section of Figure 2 shows the logic model and chain of causality for this evaluation.

3.2. Data Collection

This study's dataset was from Wi\$eUp surveys collected between February 2008 and November 2010 from classes conducted in partnership with Texas A&M AgriLife Extension Service. Participants were given a pre-survey directly before the lesson, a post survey directly after the lesson, and a final survey was emailed to most participants. All participants received the same survey on debt and saving behavior, regardless of what debt or saving education they received. To those without email, a paper copy of the survey was sent by postal mail with a stamped return envelope.

The original dataset intended for this study was the complete database of pre, post, and post-assessment survey results from all classroom and online participants. However, following a move to a new building, Texas A&M AgriLife Extension servers were reconfigured without access to the database during the timeframe for this study.

The dataset for this study was constructed from 138 sets of paper surveys that had been placed in storage. Each final survey contains a unique participant identification number (ID) that was used to identify which modules a participant had completed. Originally, the intention was to match participants' final surveys with their corresponding pre- and post-surveys. If paper pre- and post- surveys could be tied to the final survey, it would be possible to match intentions to follow-through of participants. Paper pre- and post-surveys, however, did not contain the unique participant ID and could not be matched to final survey responses. While data are not available to assess changes over time, it is possible to observe differences in behavior between groups who studied different subjects and examine the self-reported effects of education.

This assessment is guided by the outcomes section of the Wi\$eUp logic model. The final surveys specifically ask participants about behaviors “since taking the Wi\$eUp course” (Granovsky 2010, see Appendix A), those dynamic actions of changing, reducing, or increasing debt and savings. Wi\$eUp’s logic model is concerned with change in knowledge, behavior, and intentions. The scope of change in an individual participant cannot be measured because of data restrictions, but we can see how behavior is different for people who received different modules. In the assessments, those who participated only in the savings module are compared to those who took only the debt module, and both against participants who took both modules. Module four focuses on debt education and module five on savings education (Granovsky 2010).

Figure 1: University of Wisconsin-Extension Logic

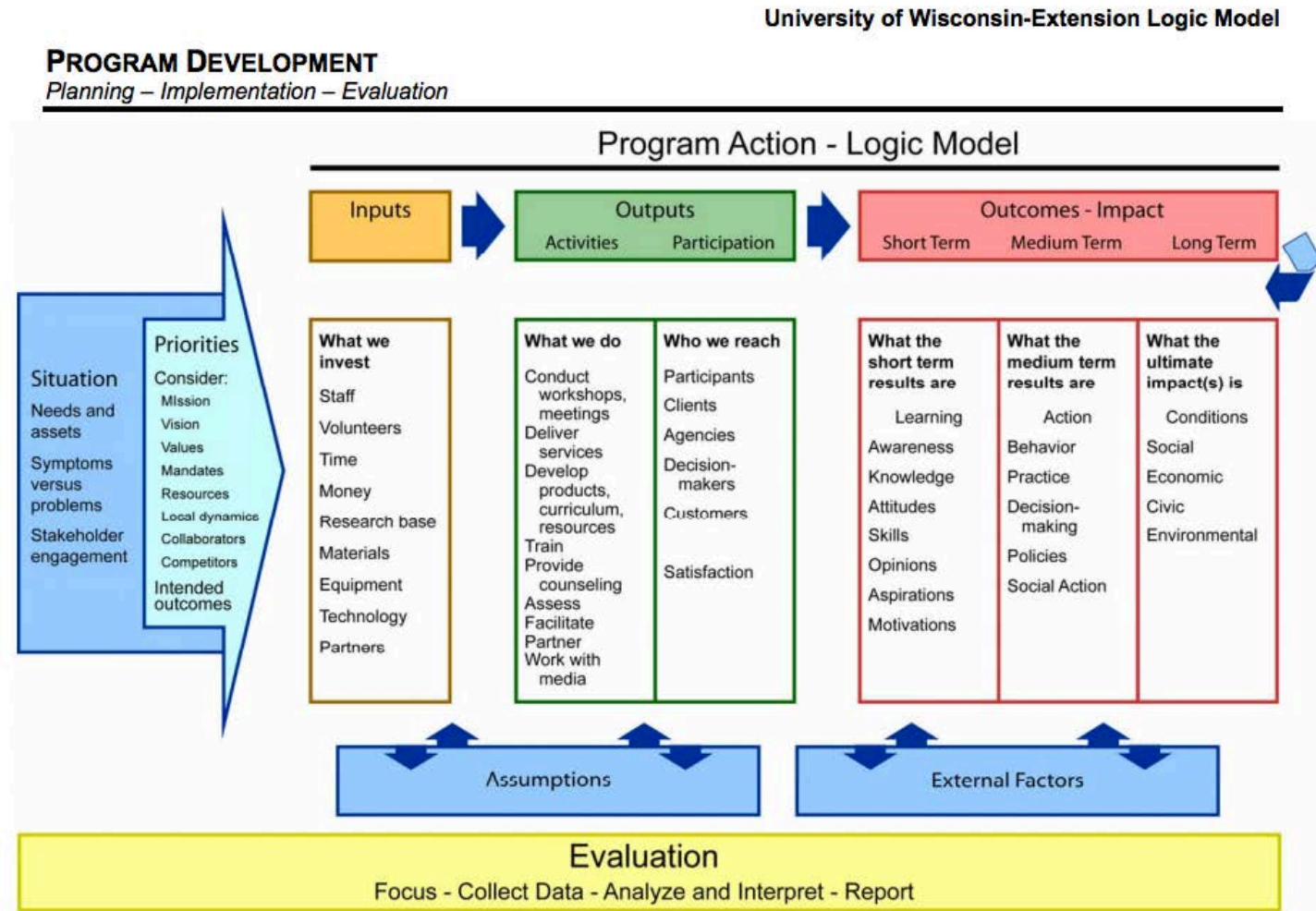
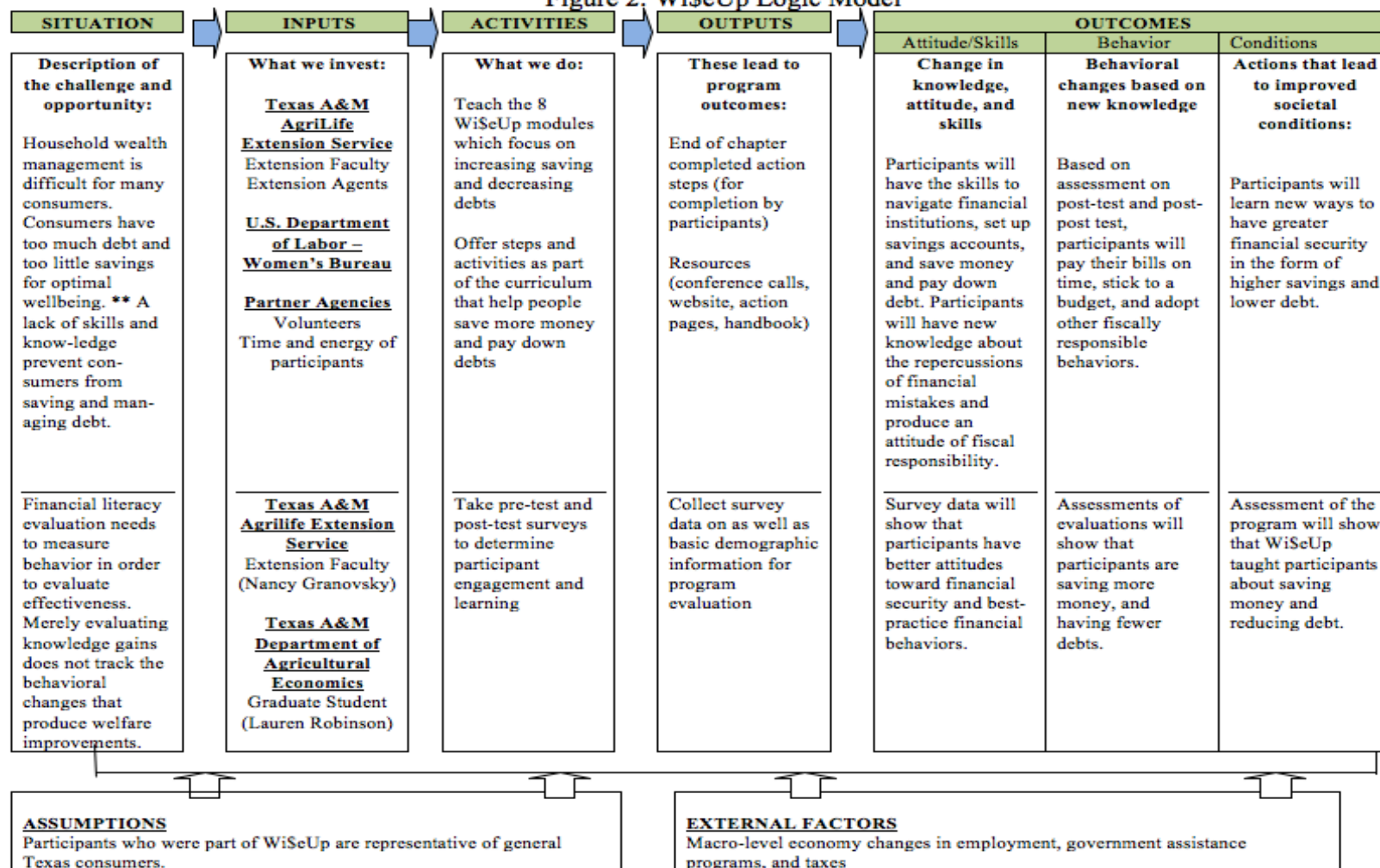


Figure 2: WiSeUp Logic Model



**Two thirds of Texans do not have adequate savings in the event of an emergency. One-third of Texans have utilized high-interest short-term loans.

Wi\$eUp summary records contain a copy of module completion records for each participant ID (Granovsky 2013). Using this record, paired with participant IDs on the final surveys, it is possible to match individual final surveys to records of completing modules' pre and post surveys. In this study's dataset of 138 final surveys, there were final surveys for 91 participants in module four and 78 participants in module five. This study focuses on participation in modules four and five because of the paucity of data for the other modules. Available records for the other Wi\$eUp modules have an average of eight participants per module. Extension agents encouraged all participants to take modules four and five because they most directly address the program's perceived need to increase debt and savings knowledge (Granovsky 2013). There are three distinct student groups: those who only took module four on debts, those who only took module five on savings, and those who took both modules as shown in Table 1.

Table 1: Module Participants

Participants who completed only module four (credit)	Participants who completed only module five (savings)	Participants who completed both module four and five
49	35	45
Total participants in module four	Total participants in module five	Total Participants in both module four and five
94	80	129

The survey questions for Wi\$eUp can be sub-categorized using Hilgert and Hogarth's (2003) system of classification, which has been used to bring unity to analysis of surveys (Lusardi 2008a). Financial literacy survey questions are broadly divided into

debt and savings. Within these two are the sub categories of debt and credit management. Savings can be sub-categorized into saving, cash flow, financial experience, and investment/retirement. Appendix C contains the final survey questions and debt or savings classification.

Broadly, Wi\$eUp seeks to connect inputs of educational modules to outputs of decreased debt and increasing savings (see Figure 2, p. 34). Following this, observers might anticipate that participants in either module will save more money and have fewer debts than before they began Wi\$eUp. The final survey only asks participants about behaviors that have happened since participation in Wi\$eUp. Individual questions also reiterate the surveyed timeframe, with questions such as “I now...” or “I have... since taking the Wi\$eUp course.” Since the logic model looks to determine outcomes, a total “yes” answer tally greater than zero may indicate that the participant, since taking Wi\$eUp, has changed her behavior. Causality is by no means proved, but we can capture a snapshot of the new financial picture of a Wi\$eUp participant.

Summary statistics were based on the number of reported “yes” answers for questions one through thirty. Questions one through thirty are comparable because they have the same structure of “yes” or “no” answers. Since questions one through thirty asked for self-reported behaviors, answering “yes” can be interpreted as engaging in a financially healthy behavior.² Furthermore, the number of affirmative answers can be

² Some of the questions were two-part questions, asking for specific dollar amounts of debt reduction, or percentage changes. Very few participants answered these questions, with only 10% on average providing specific dollar amounts or percentages. Question thirty-one was a five-part question about credit card management and because there were five questions within the one question, it was not considered comparable to the others.

tallied to represent the number of self-reported financially healthy behaviors. This quantitative variable is used to describe the number of self-reported financially healthy behaviors and for convenience is referred to as the debt or savings score.

3.3. Methods of Data Examination

This study examines the relationship between receiving education on debt and savings and corresponding behavior changes, as guided by the Wi\$eUp logic model. The assessment uses two tools: ANOVA and linear regression. The first method of data examination is to measure the efficacy of the separate modules by comparing savings and debt scores between three groups: those who took only the savings module, those who took the debt module, and those who took both modules. The method used to conduct this comparison is a one-way analysis of variance (ANOVA) to determine if the difference in scores between the groups is statistically significant, or if the variance between group scores does not appear to be meaningful.

Financial education should produce changes in behavior (Hilgert, Hogarth, & Beverley 2003) and we expect this relationship to hold proportionally--that is greater changes in behavior will correlate with more education. Therefore, we expect that debt scores will be highest in participants who took both the debt and savings modules, followed by the participants who took only the debt module, and lowest in participants who did not take the debt module. We expect that savings scores will be highest in

Questions thirty-two through thirty six asked respondents for qualitative information about the course and questions, and questions thirty-seven through forty were demographic questions.

participants who took both the debt and savings modules, followed by participants who took only the savings module, and lowest in participants who only took the debt module. There were 125 participants in this sample. The survey asked for “yes”, “no”, or “not applicable” answers regarding eight debt questions and twenty-two savings questions. The number of “yes” answers for debt questions is the debt score, the number of “yes” answers for savings questions is the savings score.

Conversely, answering “no” to any question could be interpreted as engaging in a financially unhealthy behavior, such as not investing or not reducing debt. However, there are some limitations to this understanding of financially unhealthy behaviors. Many participants may have marked “no” instead of “not applicable.” For example, participants who own their own homes have not started saving for a down payment, but if they marked that question “no”, they would be penalized for being homeowners. Participants should mark questions as “N/A” if these behaviors were established before taking Wi\$eUp, but without other sources of verification, we cannot be sure that participants correctly understood the survey. Furthermore, even answering “N/A” can be misleading, because it takes a point away from the savings score. Different survey design could have alleviated this by having a shorter survey that focused exclusively on content relevant to the logic model.

The goal of Wi\$eUp, in accordance with the logic model, is to minimize the number of “no” responses. Furthermore, the number of negative answers can be summed to represent the number of self-reported financially unhealthy behaviors. This variable is used to quantify self-reported financially unhealthy behaviors. Because of the limitations

of participant understanding and lack of firsthand data for unhealthy scores, these results will be available in the provided dataset, but will not be included in the body of this study.

Looking only at questions regarding debt, they can be broadly divided into debt questions and credit management questions (Hilgert & Hogarth 2003). Appendix C lists all Wi\$eUp survey questions disaggregated by credit and debt. There are four debt questions and four credit management questions. Debt questions ask about debt to income ratios and dollar amounts of debt reduction. The credit management questions are on monitoring. Savings question responses disaggregated by subject domain (Hilgert & Hogarth 2003) are four savings questions, two cash flow questions, four financial experience questions, ten investment/retirement questions, and two investment questions.

Secondly, this evaluation looks to quantify participants' increased financially healthy behaviors, shown by savings and debt scores above zero. The estimated relationship between education and financial behavior can be modeled using an Ordinary Least Square (OLS) regression (Lusardi 2008a; Mandell 2009). The model of the relationship between completing a module and its effect on debt behavior structured as
$$N_D = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 A_1 + \beta_4 A_2 + \beta_5 A_4 + \beta_6 E_2 + \beta_7 E_3 + \beta_8 E_4 + \beta_9 AI + \beta_{10} B + \beta_{11} O + \varepsilon$$
 where

- o N_D is a quantitative variable between 0 and 8 detailing the number of affirmative answers regarding debt-related financial behavior,
- o β_0 is an intercept coefficient,
- o X_1 is the dummy variable for completion of Wi\$eUp's savings module

- o X_2 is a dummy variable for completion of both modules. Participation in the debt module is modeled by X_2 and X_1 both zero.
- o The values for β_1 and β_2 are of particular interest because of the interactive nature of taking both modules. β_1 measures effect of debt education over savings education. β_2 measures the compounded impact of taking both the savings and debt module. It is possible that educational impacts is additive, but it's more accurate to measure the impact of taking both modules as its own variable, rather than assuming the additive nature. It is important to control for exogenous demographic variables because race, education, and age have been previously correlated to lower financial literacy levels (Lusardi & Mitchell 2008).
- o A is a dummy variable for age range is split into 4 categories: A_1 is for young professionals between the ages of 18 and 24, A_2 are newly established professionals between 25 and 30, A_3 are established professionals between 30 and 39, and ages 40 and up are captured by zero for A_1 - A_3 .
- o E is the dummy value for education: E_1 is for less than a high school education (captured by zero in E_2 - E_4), E_2 is for only a high school education, E_3 is for some college but no bachelor's degree, and a completed bachelor's degree or more education is E_4 .

- o AI is a dummy variable for American Indian ethnicity, B is a dummy variable for Black ethnicity, and O is a dummy variable for other ethnicity such as Hispanic or biracial, white is zero for AI, B, and O, and
- o ε is the error term.

The model for determining the relationship between completing a module and its effect on savings behavior is modeled in a similar fashion

$$N_s = \beta_0 + \beta_1 X_3 + \beta_2 X_2 + \beta_3 A_1 + \beta_4 A_2 + \beta_5 A_4 + \beta_6 E_2 + \beta_7 E_3 + \beta_8 E_4 + \beta_9 AI + \beta_{10} B + \beta_{11} O + \varepsilon$$

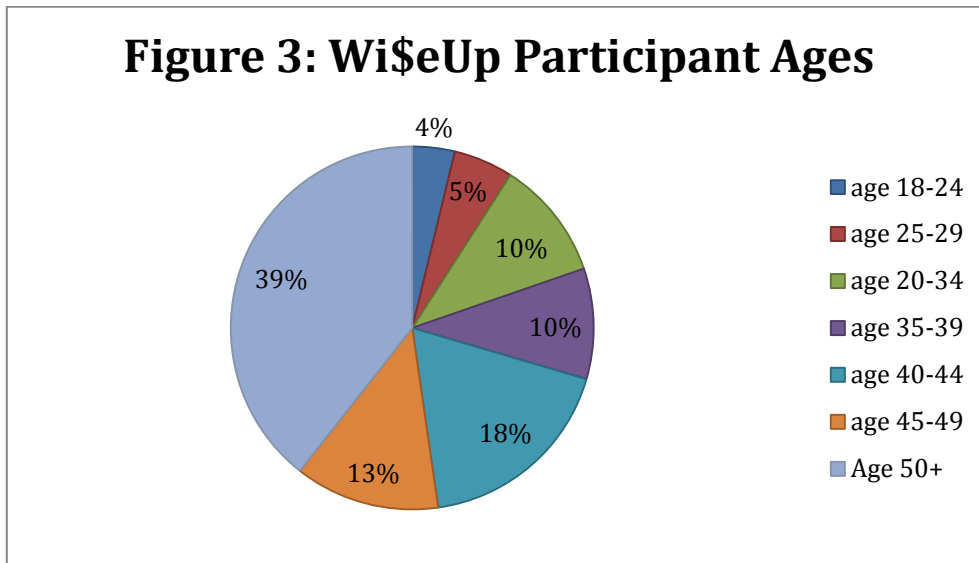
where

- o N_s is a quantitative variable between 0 and 22 giving the number of affirmative answers regarding savings-related financial behavior.
- o X_3 is a dummy variable for completion of Wi\$eUp's debt module.

4. DATA

4.1. Demographic Data

Overall, Wi\$eUp participants were an older, and fairly diverse group. These participant data are all from paper surveys, which were only used if participants provided no email address. Wi\$eUp was designed for generations X and Y, yet nearly 40% of the participants reported being over 50. It's possible that older participants were less likely to have email and this sample of mail-only responses over represents the true proportion of older students (Israel 2012).



Participant race (Figure 4) showed that the most represented ethnicity was white, with 45%. Nearly a quarter of respondent were African American and almost one in eight participants were Native American. Granovsky (2013) noted that some tribal communities implemented Wi\$eUp during this period. Wi\$eUp Participants were overall very well educated (Figure 5), with over half of participants possessing some college education, and nearly one in eight possessing a post-graduate degree.

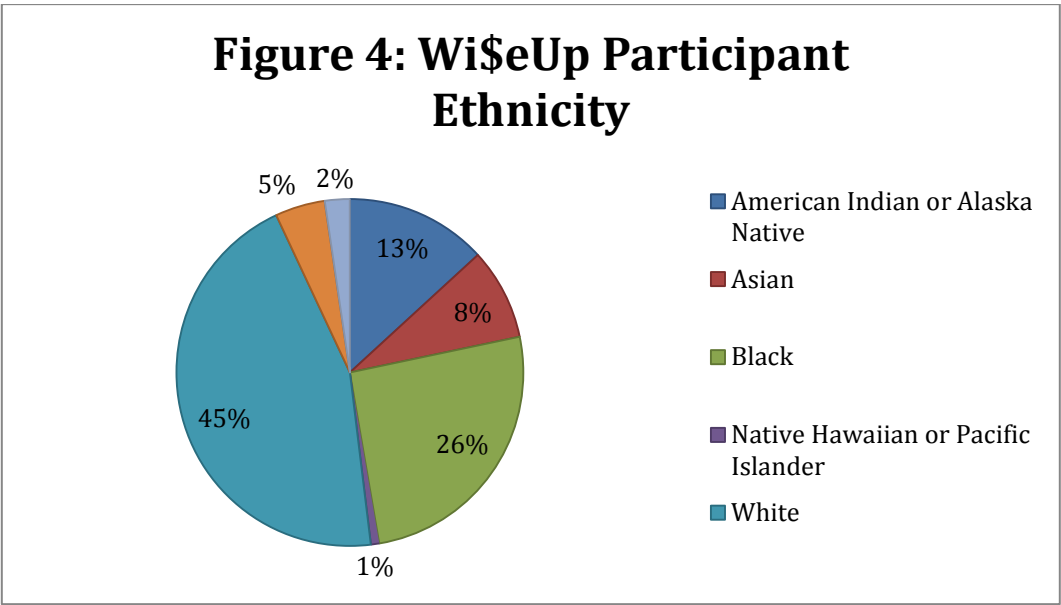
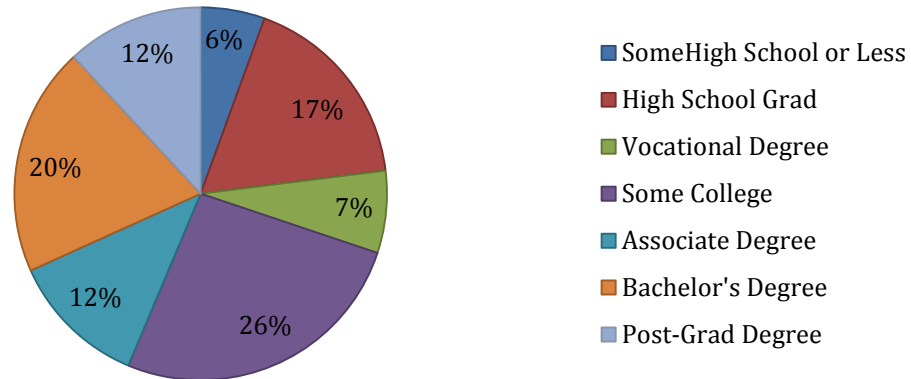


Figure 5: Wi\$eUpParticipant Education



4.2 Healthy Scores

4.2.1. Healthy Debt Scores

Table 2, Table3, and Table 4 contain the summary statistics for the ANOVA examinations of differences between the mean healthy debt scores, both overall and disaggregated by content area. As expected, the highest average healthy scores overall and in each disaggregated content area for debt come from the groups that took both modules. However, only the overall and the debt-only results of the different means were significant at a p-value of .2. This may be tentative evidence of the efficaciousness of debt education at producing measurable changes in behavior. Repeated application of debt education to diverse groups could provide considerably more information about the magnitude of this effect.

Table 2:Healthy Debt Scores						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
Both Modules	45.00	188.00	4.18	7.38		
Debt Module	49.00	175.00	3.57	5.67		
Savings Module	35.00	111.00	3.17	5.32		
ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	20.78	2.00	10.39	1.68	0.19	3.07
Within Groups	777.55	126.00	6.17			
Total	798.33	128.00				

Table 3: Healthy Debt Scores Disaggregated- Debt Only					
SUMMARY					
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	
Both Modules	45.00	86.00	1.91	1.86	
Debt Module	49.00	69.00	1.41	1.58	
Savings Module	35.00	39.00	1.11	1.40	
ANOVA					
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>
Between Groups	13.22	2.00	6.61	4.06	0.02
Within Groups	205.02	126.00	1.63		
Total	218.25	128.00			

Table 4: Healthy Debt Scores Disaggregated- Credit Management					
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	
Both Modules	45.00	102.00	2.27	3.02	
Debt Module	49.00	106.00	2.16	2.18	
Savings Module	35.00	72.00	2.06	2.53	
ANOVA					
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>
Between Groups	0.87	2.00	0.43	0.17	0.84
Within Groups	323.38	126.00	2.57		
Total	324.25	128.00			

4.2.2. Healthy Savings Scores

When examining healthy savings scores (See Tables 5 through 10), participants who took both modules had, overall, higher average healthy savings scores. Disaggregated by content, participants who took the savings module had higher healthy savings scores in every category except investment and retirement. However, this difference was very small in magnitude and not statistically significant. This result may be because of the small sample size or a result of chance. It is also possible that Wi\$eUp's savings module is ineffective at producing behavioral changes, or that the healthy savings score measured behavioral changes too soon after intervention to show measurable effects. The absence of statistically significant results is ambiguous and deserves further replication efforts with different samples to determine if Wi\$eUp's savings module is ineffective, or if this sample was a matter of chance. Other forms of savings education, such as Money Smart have produced behavioral changes in similar populations to Wi\$eUp and the absence of statistically significant evidence is not the same as evidence of ineffectiveness (Taleb 2012).

Table 5: Healthy Savings Scores					
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	
Both Modules	45.00	250.00	5.56	15.57	
Debt Module	49.00	273.00	5.57	13.79	
Savings Module	35.00	191.00	5.46	11.73	
ANOVA					
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>
Between Groups	0.30	2.00	0.15	0.01	0.99
Within Groups	1745.80	126.00	13.86		
Total	1746.09	128.00			

Table 6: Healthy Savings Scores Disaggregated-Savings Only					
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	
Both Modules	45.00	62.00	1.38	1.56	
Debt Module	49.00	76.00	1.55	1.04	
Savings Module	35.00	55.00	1.57	1.08	
ANOVA					
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>
Between Groups	0.98	2.00	0.49	0.40	0.67
Within Groups	155.27	126.00	1.23		
Total	156.25	128.00			

Table 7: Healthy Savings Scores Disaggregated-Cash Flow					
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	
Both Modules	45.00	39.00	0.87	0.57	
Debt Module	49.00	35.00	0.71	0.67	
Savings Module	35.00	31.00	0.89	0.69	
ANOVA					
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>
Between Groups	0.79	2.00	0.40	0.62	0.54
Within Groups	80.74	126.00	0.64		
Total	81.53	128.00			

Table 8: Healthy Savings Scores Disaggregated-Financial Experience					
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	
Both Modules	45.00	38.00	0.84	0.45	
Debt Module	49.00	47.00	0.96	0.46	
Savings Module	35.00	37.00	1.06	0.47	
ANOVA					
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>
Between Groups	0.90	2.00	0.45	0.99	0.38
Within Groups	57.72	126.00	0.46		
Total	58.62	128.00			

Table 9: Healthy Savings Scores Disaggregated-Investment					
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	
Both Modules	45.00	36.00	0.80	0.66	
Debt Module	49.00	32.00	0.65	0.56	
Savings Module	35.00	19.00	0.54	0.61	
ANOVA					
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>
Between Groups	1.34	2.00	0.67	1.09	0.34
Within Groups	76.99	126.00	0.61		
Total	78.33	128.00			

Table 10: Healthy Savings Score Disaggregated-Retirement					
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	
Both_Modules	45.00	75.00	1.67	3.64	
Debt_Module	49.00	83.00	1.69	3.72	
Savings_Module	35.00	49.00	1.40	2.42	
ANOVA					
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>
Between Groups	2.03	2.00	1.01	0.30	0.74
Within Groups	420.81	126.00	3.34		
Total	422.84	128.00			

4.3. Ordinary Least Squares Results

The estimated regression of the relationship between completing a module and its effect on savings behavior is designed to determine the contribution of module completion to higher healthy savings scores. However, many financial education programs take into special account the effect of race, age, and education on financial behavior (Bauer, Son, Hur, & Anderson-Porisch 2011).

4.3.1. OLS Results for Debt

The ordinary least squares result for the regression on debt equation is as follows:

$$N_D = 2.66 - .34X_1 + .77X_2 + .16A_1 - .02A_2 - .21A_3 - .66E_2 + 1.13E_3 + 1.42E_4 - .29AI - .13B + .41O$$

That is, from our dataset, we expect to see the number of healthy debt behaviors increasing for participants who took both modules by .77, and relative to savings education, debt education produces a non-statistically significant gain of .34 to the healthy debt score (or taking the savings module instead of the debt module reduces the score by .34). Younger age appears to be correlated with higher scores, although this finding was not significant at $p=.2$ (see Table 11). Older age groups also appear to have lower scores, although these results were not significant at the same p-value. One possible explanation is that participants are self-selecting education based on financial unhealthiness. Younger participants, who have decades of income-producing years ahead of them, would be much less likely to seek out financial education to solve their bad habits, but rather to establish good ones. Older participants who have good habits

would not be likely to take such a class, but older participants who have bad habits and want to salvage their retirement would want to take Wi\$eUp. These older participants have much greater behavioral hurdles to surmount than the blanker slates of a young participant.

Education appears to have a positive effect on healthy debt scores- the coefficients for participants with college education were positive and significant at $p=.21$. This is consistent with Lusardi and Mithcell's 2008 findings that showed financial illiteracy and lower educational attainment going hand in hand. Ethnicity appears to have a negative effect on N_D , which is consistent with Lusardi and Mitchell's findings (2008). This finding has led to the creation of culturally appropriate forms of financial literacy such as Dollar Works 2 (Bauer *et al.* 2011). Table 11 reports the standard errors and confidence levels.

Table 11: Debt Regression						
Source	SS	df	MS	Number of observations	126	
Model	104.14	11	9.47	F(11,114)	1.61	
Residual	669.33	114	5.87	Prob >F	.1043	
Total	773.47	125	6.19	R-squared	.1346	
				Adjusted R-squared	.0511	
				Root MSE	2.4231	
	Coefficient	Standard Error	T	P> t	95% confidence interval	
Constant	2.66	0.93	2.87	0.01	0.82	4.49
Savings Module	-0.35	0.58	-0.60	0.55	-1.50	0.80
Both Modules	0.77	0.52	1.47	0.14	-0.27	1.80
Age ₁	0.16	1.14	0.14	0.89	-2.10	2.41
Age ₂	-0.02	1.01	-0.02	0.98	-2.02	1.97
Age ₃	-0.21	0.56	-0.37	0.71	-1.32	0.91
Education ₂	-0.66	0.98	-.68	0.50	-2.60	1.27
Education ₃	1.13	0.89	1.27	0.21	-0.64	2.90
Education ₄	1.42	0.92	1.54	0.13	-0.40	3.25
American Indian	-0.29	0.69	-0.42	0.67	-1.66	1.08
Black	-0.13	0.55	-0.24	0.81	-1.21	0.95
Other	0.41	0.63	0.66	0.51	-0.83	1.67

4.3.2. OLS Results for savings

Controlling for race, age, and education, we find the following OLS regression for healthy savings scores:

$$N_s = 3.52 - .41X_3 - .03X_2 + 2.15A_1 + .99A_2 - .67A_3 - .03E_2 + 2.15E_3 + 2.76E_4 - .12AI - .089B + 2.76O$$

That is, from our dataset, we expect to see the number of healthy savings behaviors decreasing for participants who took both modules by .03, and relative to debt education, savings education produces a non-statistically significant gain of .41 to the healthy savings score. This result was not statistically significant at $p=0.2$. There are three possible reasons for the regression results showing that greater education produce little to negative changes in behavior. The first is that these results correctly reflect financial education's ineffectiveness. Financial behavior is not the result of education and information will not produce behavioral change (Campbell 2008). The second is that these results are somehow wrong. In a small population these results could have been obtained by chance, and replication with greater numbers would disprove them. The third possibility is that the complexity of the topic and the method of surveying did not accurately capture the changes to financial behavior. The savings score obtained from the survey simply is not the correct measure of financial behavior, either because of a lack of alignment of content presented in the saving module and evaluated in the saving survey such as investment, the timeline of the survey, or the ambiguity of the survey.

Older age groups also appear to have lower scores than the younger ages' scores, although this finding was not significant at $p=.2$ (see Table 12). Again, this result may be the result of chance or self-selection. Education appears to have a positive effect on healthy savings scores - participants with more education had more positive and significant coefficients for their savings scores. But, education's effect on healthy savings may be the result of a third, unmeasurable factor like self-control or conscientiousness.

Table 12: Savings Regression						
Source	SS	df	MS	Number of observations	126	
Model	240.62	11	21.87	F(11,114)	1.68	
Residual	1482.85	114	13.01	Prob >F	0.086	
Total	1723.47	125	13.79	R-squared	0.134	
				Adjusted R-squared	0.057	
				Root MSE	3.61	
	Coefficient	Standard Error	T	P> t	95% confidence interval	
Constant	3.52	1.40	2.50	0.01	0.73	6.30
Debt Module	-0.41	0.86	-0.47	0.64	-2.11	1.30
Both Modules	-0.03	.85	-.03	0.973	-1.72	1.66
Age ₁	2.15	1.69	1.27	0.21	-1.21	5.51
Age ₂	0.99	1.50	0.66	0.51	-1.99	3.96
Age ₃	-0.67	0.84	-0.8	0.43	-2.33	0.99
Education ₂	-0.03	1.45	-0.02	0.98	-2.91	2.85
Education ₃	2.15	1.33	1.62	0.11	-0.48	4.79
Education ₄	2.76	1.37	2.01	0.047	0.040	5.48
American Indian	-0.12	1.03	-0.12	0.91	-2.16	1.92
Black	-0.089	0.81	-0.11	0.91	-1.70	1.52
Other	2.16	0.93	2.30	0.023	0.30	4.02

5. DISCUSSION AND CONCLUSIONS

5.1 Discussion of Data

5.1.1. ANOVA results

Overall, very few results were significant at p-values of 0.2. It was expected that those who had taken both the savings and debt modules would have a higher number of affirmative answers regarding every aspect of debt and savings because of their increased education (Hilgerth & Hogarth 2003). However, this was only found in debt questions for Wi\$eUp and was only significant for the four debt-only questions. It was expected that those who had taken the module on debt would have a higher number of affirmative answers for debt than those who had only taken the module on savings.

These results were found in this Wi\$eUp data. It was expected that those who had taken the module on savings would have a higher number of affirmative answers for savings than those who had only taken the module on debt. These results were found in the Wi\$eUp data for the savings, cash flow, retirement and financial experience and not for the questions on investment/retirement. None of these results were statistically significant.

Wi\$eUp has shown some initial promising debt scores for participants, but these scores were not statistically significant. This may be the result of chance, and that another replication would show different results. There is also the possibility that Wi\$eUp is not particularly effective at producing strong behavioral changes. Previous

evaluations of financial literacy programs have shown mixed results (Mandell 2009), which suggests that the program design and evaluation process should be reconsidered.

Savings is a complex topic about which few Americans have sufficient knowledge (Mandell 2008). Thaler and Sunstein (2008, p. 12) noted that even the best educational materials on savings can have close to zero effect because of psychological factors like self-control and loss aversion. Students who took both the debt and savings module reported more financially healthy debt behaviors than those who took only one module. Participants who took both modules reported answering yes to fewer savings questions than participants who only took one module. This is puzzling, since more financial education should lead to greater consumption of saving (Hilgert & Hogarth 2003). However, it's possible that there was reporting bias and those who had more financial education were better aware of their options and were reporting more accurately than others (Lusardi 2008a). Wi\$eUp was designed to change behavior (Granovsky 2013) but inertia and status quo bias determine decisions and, "when choices are highly complex [like savings and investment], required choosing....may not even be feasible" (Thaler & Sunstein 2008, p. 87).

Overall, those who took the savings module answered yes to more questions in every category except investment and investment/retirement. It is unexpected that those who took the savings module would answer yes to fewer questions about investment behaviors, however as mentioned before investment is a complex subject with many behavioral complications (Thaler & Sunstein 2008) and the results were not statistically significant and may be a result of chance. Compared to participants who only took the

savings module, participants who had taken both modules answered yes, on average, to fewer savings, cash flow, and financial experience questions. Compared to participants who only took the savings module, participants who had taken both modules answered yes, on average to more investment/retirement and retirement questions. There are many possible interpretations for these results. These results could have been obtained by chance and with a larger sample one would not see these results. A second possibility is that Wi\$eUp is ineffective (Willis 2008). The third is that increased exposure to financial education is better for more complex decisions like investment, but presents too many options at an inopportune time (Mandel 2009). With the current data, there is very little certainty that Wi\$eUp's financial education produces substantial gains in financially healthy behavior.

5.1.2. OLS results

The OLS equation for healthy debt score answers was

$$N_D = 2.66 - .34X_1 + .77X_2 + .16A_1 - .02A_2 - .21A_3 - .66E_2 + 1.13E_3 + 1.42E_4 - .29AI - .13B + .41O$$

And the OLS equation for healthy savings scores was

$$N_s = 3.52 - .41X_3 - .03X_2 + 2.15A_1 + .99A_2 - .67A_3 - .03E_2 + 2.15E_3 + 2.76E_4 - .12AI - .089B + 2.76O$$

The coefficient for X_2 , completing both modules was greater for healthy debt scores than healthy savings scores. This result may be because financial education produces debt behavior changes, or that debt behavior is more malleable in three months. Higher levels of education were also a contributor to increased healthy debt scores, especially college

graduation and post-graduate education. This finding is supported by other empirical results noting that people with higher levels of education have correspondingly higher levels of financial literacy (Lusardi & Mitchell 2008). Being American Indian or Black contributed negatively to healthy debt scores, which is confirmed in other research that shows that minorities have disproportionately worse financial situations than whites (Lusardi & Mitchell 2008). Financial educators may want to take special care to use curriculum methods and behavioral support that are culturally appropriate (Bauer *et al.* 2011). The findings for debt education are encouraging for proponents of providing financial literacy, but caution is necessary. The Wi\$eUp surveys were not done with a random population and do not prove causation. Further replication is necessary.

In the OLS regression for healthy savings score the coefficient for X_3 , completing the module on debt, was negative. This result can be partially explained by the answers for the investment and investment/retirement categories. Those who took the savings module had higher scores than the groups in every other category. The questions regarding investment/retirement were 45% of the total savings questions. Module 7 of Wi\$eUp provided an in depth guide to becoming an investor (Granovsky 2010). Very few participants in both modules also completed module 7 and thus were missing crucial investment information asked on the saving survey. This survey design issue clouds the results. Further study is needed to measure the efficacy of Wi\$eUp as a savings education tool.

Work by Thaler & Sunstein (2008), Lusardi (2008a), Mandell (2009), and Kahneman (2011) explore the idea that saving is especially difficult and this difficulty

may stem from biological neurological processing systems, which may be less responsive to corrective educational efforts. More research into the psychological tradeoffs involved in saving may lead to the development of efficient savings curriculums, or it may result in societal changes like the adoption of automatic savings programs (Thaler & Sunstein 2008).

Highest level of education completed was a statistically significant variable. This was also true for the regression regarding healthy debt scores. Educators may need to take into careful consideration the effect that education has on behavioral change and offer as much support as possible to less educated participants so that they too can reap the benefits of financial education. Education may also be the result of an unobservable preference or personality trait that would lead someone to more conscientiously apply this knowledge. Further research is needed in this area.

5.2. Implications

While it is possible that this increased content education could cause a behavioral change, showing this causal link would require a new program that randomizes participants' content of study and would also exclude willing participants from an educational opportunity. That program may not be feasible for most extension agents to deliver (Lyons 2003). In extension and other community-empowerment programs, much of the work done by practitioners is in delivery. Follow-up and ability to measure the effect of the material delivered is difficult because participants are constantly moving and juggling busy schedules. Extension agents may have many different programs they are

seeking to deliver, and not enough time to evaluate all of them. This research, looking at participant survey responses from Wi\$eUp suggest that education may change behavior, especially debt education. Should an extension agent or educator wish to deliver a financial capabilities program, this knowledge may help guide program choice.

Context is essential in financial literacy (Martin 2007; Mandell 2009). Social environment is a factor that financial educators can utilize to their advantage to reinforce classroom content (Thaler & Sunstein 2008). Behavioral capabilities, soft skills, and time preferences are just as important as financial content in modifying behavior (Braunstein *et al.* 2002). Savings education is particularly difficult because of this behavioral component. Although changing behavior is a difficult task, there are many resources available to financial educators: government sites, free curriculum from the FDIC, extension resources, and engaging child-focused materials (Bauer *et al.* 2011). More widespread and systematic program evaluation will help spread best practices to other scholar-practitioners (Fox, Bartholomae, & Jinkook 2005), but community needs and characteristics should take first priority in program design (Messy & Atkinson 2012). Financial education is a relatively new discipline and has a long runway for growth and change (Braunstein *et al.* 2002).

5.3. Conclusions

This research contributes to the literature by highlighting the importance of debt education in helping participants improve their financial situation. Wi\$eUp's debt education module appears to change financial behavior in participants, as was predicted

by the logic model. And since Wi\$eUp appears to be effective, regardless of race and age, Wi\$eUp's debt education may be broadly suited for greater implementation. It would be beneficial to study how lower debts and healthier debt behaviors contribute to overall well-being, beyond the mere benefit of freeing up income available for consumptive purposes.

Some of the limitations to this study were because of the survey design and implementation. This survey contained dozens of questions, but some answer choices were ambiguous. Someone who lives without debt might be financially healthy, but this survey would penalize that participant for not marking "yes" on the question about debt reduction. Many of the questions about financial behavior like having a finance-related web homepage or shredding credit reports, measured less-impactful practices than reducing the dollar amount of debt. Future surveys could be shorter, with easier to parse questions, and provide much more information. Future evaluation could utilize logit analyses to study education and behavioral links.

Nearly half of Americans are living hand-to-mouth (Olen 2012), without the benefit of a well-capitalized emergency fund. Greater savings may help prevent sharp consumption shocks. But, saving money requires income and willpower. Wi\$eUp's savings education produced ambiguous gains in healthy savings behavior. Lack of education, poor access to jobs, and macroeconomic shocks may all prevent a person from having enough income to save. There are behavioral difficulties associated with saving, and Wi\$eUp's module addressed many of them. For people who suffer from "last minute" expenses and emergencies, there is a step-by-step process for budgeting for

irregular expenses. For those who can't resist the temptation to spend, Wi\$eUp describes strategies to save in easy to understand stories: using separate accounts, automatic withdrawals, and the benefits of compound interest. While Wi\$eUp's savings module appears to help participants engage in healthy financial behaviors, they must compete with the effects of the labor market. If Wi\$eUp were to be repeated in other populations, the effect of affluence on savings could be better studied. Finally, Wi\$eUp module completion dates weren't recorded so the effect of a recession is unknown. This is another potential solution for future survey designs.

Financial behaviors are the result of myriad conditions: education, preferences, prices, the tax structure, and more. Financial education isn't the only tool for changing financial behaviors. There are correlations between financial literacy and improved life outcomes like higher wealth and greater health that should be further investigated (Schuchardt *et al.* 2009). Financial education isn't a panacea, but continued study of its efforts can illuminate what financial education does well, and where other avenues such as counseling and intervention may work better. This study of Wi\$eUp illuminates the potential for improving debt education by making simple, behaviorally-focused education.

Some limitations are acknowledged: the sample here was not random and was small. There were no records for participants who completed the course online and the linked pre and post surveys were also unavailable. Randomized control trials (RCTs), as are necessary in medicine, provide the best possible evidence of causality but are fraught with difficulties for social programs (Lyons *et al.* 2003). Some practitioners don't have

the training or inclination to produce RCTs. Some programs would shut down due to lack of resources if they were required to produce RCTs, leaving that area bereft of any educational benefits. There are also ethical concerns about denying education to people who are disadvantaged and need assistance.

Wi\$eUp's method of evaluation was designed to be the best fit given limited resources. Initially, evaluation was not even included in the Department of Labor Women's Bureau's request. It was through Granovsky's insistence evaluation was even included (Granovsky 2013). The surveys were designed to focus entirely on the goal of behavioral changes. Per the logic model, survey and evaluation focused on intentions and dynamic behaviors. Wi\$eUp's focus was on the ability of people to change and grow, but this growth may take years rather than months. Continued follow-up of participants, not just at three months, but in subsequent months and years, may provide illumination on the role that time takes in changing financial behaviors.

Future research may focus on dealing with the difficulties of teaching savings, taking into particular account the macroeconomics of microeconomic decisions. Future research studying participants' financial behaviors before, during, and after education could uncover specifics of the most-needed areas for education. Research that has direct observational data on financial behavior, instead of relying on self-reports, could also contribute to the knowledge base by offering more accurate data on the gap between reported and observed behavior. Continued study of behavioral factors and community and classroom support of behavioral modifications will provide new avenues of research and promising practice.

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APPENDIX A



WiSeUp Final Survey

Now that you have completed the **WiSe Up Program**, we need your help. The information you provide here will be used as a guide for making changes to improve the WiSe Up Program. Please take a moment to complete this survey by indicating how your financial planning habits and practices have changed since taking the course.

Your responses will be kept strictly confidential. Thank you for your help!

INSTRUCTIONS FOR COMPLETING THE SURVEY:

Circle the word (YES, NO, NA for Not Applicable) or the letter (A,B,C, etc.) for each answer.

Since taking the WiSeUp course...

				Not Applica ble
1	I calculated my debt-to-income ratio (the percentage of my take-home pay that goes to pay non-mortgage debt).	YES	NO	NA
2	I obtained a copy of my credit reports and examined them for accuracy.	YES	NO	NA
3	I made/updated my list of credit cards, account numbers, and credit card company contact telephone numbers.	YES	NO	NA
4	I now track my credit card purchases.	YES	NO	NA
5	I now review my monthly credit card statement for errors.	YES	NO	NA
6	I now shred my documents to avoid identity theft.	YES	NO	NA
7	I have reduced my debt since taking the WiSe Up course.	YES	NO	NA
8	I now "pay myself first" from my paycheck before I pay my bills and save or invest that money.	YES	NO	NA
9	I am saving at least 10% of my income.	YES	NO	NA
10	I have started an emergency fund to accumulate 3–6 months' living expenses and have made two or more deposits to it.	YES	NO	NA
11	I am now saving money to pay cash for one or more specific "big-ticket" items and am waiting to buy them with cash instead of charging them to my credit card.	YES	NO	NA
12	I have started to save for a down payment on a house.	YES	NO	NA

13	I have started to save for a college education (for me or someone in my family).	YES	NO	NA
14	I am now making as large a payment as possible on my credit card bills.	YES	NO	NA
15	I have increased the amount of money that I am saving for retirement.	YES	NO	NA
16	I have estimated how much I should be saving/investing for retirement.	YES	NO	NA

29. I increased my savings or investments for retirement.

- A YES, by \$_____ per month.
B NO

30. I increased my savings or investments to meet my other financial goals.

- A YES, by \$_____ per month.
B NO

When I saw my credit card bills

35. What was the most important benefit of WiSe Up to you, personally?

36. Would you recommend WiSe Up to others?

A YES. Why _____

B NO. Why not? _____

37. What is your gender?

- A Female
B Male

38. What is your age?

- A 18-24
B 25-29
C 30-34
D 35-39
E 40-44
F 45-49
G 50+

39. Highest level of education obtained?

- A Some high school or less
B High school graduate or GED
C Vocational or technical degree
D Some college
E Associate's degree
F Bachelor's degree
G Post-graduate degree(s)

40. Race? (select all that apply)

- A American Indian or Alaska Native
B Asian
C Black or African American
D Native Hawaiian or Pacific Islander
E White
F Hispanic or Latino
G Other

Thank you for your cooperation! Please return your survey in the stamped envelope!

The WiSe Up web site is maintained by Texas AgriLife Extension Service, the Texas A&M University System. Educational programs of Texas AgriLife Extension are open to all people without regard to race, color, sex, disability, religion, age or national origin.



APPENDIX B



Chapter 1 Money for Life: Pre-Test

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey.

- ☐ Prior to Wi\$eUp, I had done the following things in my financial life:

[Please mark all that apply. There is no right or wrong answer.]

- ☐ Created a written financial plan for myself.
- ☐ Created a credit and debit card safety record.
- ☐ Created an inventory/list of my vital financial records and their location.
- ☐ Created a record/list of my electronic accounts, passwords and PINS.
- ☐ Created a financial center at home for important financial records and files.
- ☐ Created a filing system for my financial documents and records.
- ☐ Organized any electronic files pertaining to my finances and backed them up.
- ☐ None of the above



Chapter 1. Money for Life - POST-TEST

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey, by indicating whether your financial planning habits and practices are changing as a result of your experience with the WiSe Up program.

(please write all numbers as neatly as possible)

1. My goals for improvement in the areas covered in Chapter 1 are:

[please check all that apply]

To develop a financial plan

To review and update my financial plan periodically as stages in my life dictate.

To organize my financial records.

2. I plan to put the following goals into action:

I plan to do
this

Does Not Apply to
Me

Complete the “Lifelines and Life Stages” Handbook Exercise.

Complete the Credit and Debit Card Safety Record

Complete the Vital Documents Inventory

Complete the Electronic Accounts, Passwords and PINS Record.

Establish or re-organize a Financial Center at home.

Establish a filing system for my financial documents and records.

Organize my electronic files and back them up.

3. How helpful was this Wi\$e Up chapter to you personally?

- Extremely helpful
- Very helpful
- Helpful
- Somewhat helpful
- Not helpful at all



Chapter 2. Money Math: Pre-Test

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey.

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(please write all numbers as neatly as possible)

1. Prior to Wi\$e Up, I had done the following things in my financial life:

[Please mark all that apply. There is no right or wrong answer.]

Developed a written statement of financial position/net worth statement.

Tracked my spending (in writing or electronically) for more than one month.

Prepared an annual summary statement of all my income and all my expenses.

Established specific, targeted financial goals in writing.

Used a manual financial calculator or accessed online calculators at least five times.

None of the above



Chapter 2. Money Math – POST-TEST

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey, by indicating whether your financial planning habits and practices are changing as a result of your experience with the WiSe Up program.

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(please write all numbers as neatly as possible)

1. My goals for improvement in the areas covered in Chapter 2 are:

[please check all that apply]

To use all of the money tools/worksheets in the chapter to understand my financial situation.

To set realistic financial goals.

2. I plan to put the following goals into action:

	I plan to do this	Does Not Apply to Me
Prepare a Statement of Financial Position (Net Worth Statement).		
Track (in writing or electronically) my spending for a 2-3 month period and analyze my results.		
Prepare a Statement of Income and Expense for the most recent tax year.		
Establish my specific financial goals in writing – short-term, intermediate-range and long-term using the suggested worksheet.		
Archive/file copies of these completed financial worksheets in my financial center at home.		
Use a manual financial calculator or access one or more online financial calculators mentioned in the chapter.		

3. How helpful was this Wi\$e Up chapter to you personally?

Extremely helpful

Very helpful

Somewhat helpful

Not helpful at all



Chapter 3. Money Basics: Pre-Test

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey.

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(please write all numbers as neatly as possible)

1. Prior to WiSe Up, I had done the following things in my financial life:
[Please mark all that apply. There is no right or wrong answer.]

Prepared and followed a written budget to guide my spending and saving.

Used a financial record keeping system to track my income, spending and saving.

Communicated positively with my spouse/significant other/other family member about important money issues.

Identified ways to reduce spending to enhance my budget.

Changed my banking services (or financial institution) to meet my needs at lower cost.

Consulted a financial professional (financial planner, financial advisor, CFP™, etc.)

None of the above



Chapter 3. Money Basics – POST-TEST

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey by indicating whether your financial planning habits and practices are changing as a result of your experience with the Wi\$e Up program.

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(please write all numbers as neatly as possible)

1. My goals for improvement in the areas covered in Chapter 3 are:

[please check all that apply]

To improve my budgeting skills.

To improve my financial record keeping.

To have an important “money talk” with someone in my family/significant other.

To analyze ways I can cut my spending.

To know how to choose banking services that meet my needs at least cost.

To know what questions to ask when interviewing a financial professional.

2. I plan to put the following goals into action:

	I plan to do this	Does Not Apply to Me
Prepare a written budget to help me achieve my financial goals.		
Develop a financial record-keeping system to track my spending.		
Identify the critical money talks I need to have with others.		
Identify five specific ways to reduce spending to enhance my budget.		
Evaluate my current banking service needs and make any needed changes.		
Interview a financial professional.		

3. How helpful was this Wi\$e Up chapter to you personally?

Extremely helpful

Very helpful

Somewhat helpful

Not helpful at all



Chapter 4. Credit in a Money World: Pre-Test

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey.

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(please write all numbers as neatly as possible)

1. My total non-mortgage debt from all sources at the present time is approximately:

(please mark only one answer)

\$0 - I am debt free.

\$1,000 - \$1,000

\$1,001 - \$5,000

\$5,001 - \$10,000

\$10,001 - \$15,000

\$15,001 - \$20,000

\$20,001 - \$30,000

\$30,001 - \$40,000

\$40,001 - \$50,000

\$50,001 - \$75,000

\$75,001 - \$100,000

over \$100,000

2. I have _____ credit cards at the present time.

3. When I pay my credit card bills:

I generally make the minimum payment on most of my credit cards.

I generally make more than the minimum payment on most of my credit cards.

I generally pay most of my credit balances in full each month.

4. I know my debt-to-income ratio (the percentage of my take-home pay that goes to pay non-mortgage debt.)

YES

NO, I do not know my debt-to-income ratio.

5. The debt-to-income ratio (the percentage of my take-home pay that goes to pay non-mortgage debt) most often recommended by financial professionals is:

5-10%

10-15%

15-20%

20-25%

25-35%

over 35%



Chapter 4. Credit in a Money World – POST-TEST

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey by indicating whether your financial planning habits and practices are changing as a result of your experience with the Wi\$e Up program.

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(please write all numbers as neatly as possible)

1. My goals for improvement in the areas covered in Chapter 4 are:

[please check all that apply]

To examine my use of credit.

To reduce my overall debt.

2. I plan to put the following goals into action:

	I plan to do this	Does Not Apply to Me
Calculate my debt-to-income ratio (the percentage of your take-home pay that goes to pay non-mortgage debt).		
Obtain a copy of my credit reports and examine them for accuracy.		
Make a list of my credit cards, account numbers, and telephone numbers of contacts for each card.		
Start tracking my credit card purchases.		
Review my monthly credit card statements for errors.		
Protect my identity by handling credit documents carefully.		
Develop a plan to reduce my debt.		

3. I want to reduce my debt-to-income ratio (the percentage of your take-home pay that goes to pay non-mortgage debt) from ____% to ____%.

4. I plan to reduce the dollar amount of my debt by: \$ _____ (whole dollar amounts only, no cents).

per week

per month

per year

5. When I pay my credit cards bills in the future, I will plan to:
- I generally make the minimum payment on most of my credit cards.
 - I generally make more than the minimum payment on most of my credit cards.
 - I generally pay most of my credit cards in full each month.
 - I generally pay off debt with the highest interest rate first.
 - I generally consolidate debt at a lower interest rate.

(please complete the other side)

6. The debt to income ratio (the percentage of my take-home pay that goes to non-mortgage debt) most often recommended by financial professionals is:

- 5-10%
- 10-15%
- 15-20%
- 20-25%
- 25-35%
- over 35%

7. How helpful was this Wi\$e Up chapter to you personally?

- Extremely helpful
- Very helpful
- Somewhat helpful
- Not helpful at all



Chapter 5. Savings Basics: Pre-Test

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey.

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(please write all numbers as neatly as possible)

1. Prior to WiSe Up, I had done the following things in my financial life:
[Please mark all that apply. There is no right or wrong answer.]

Am saving at least 10% of my income.

Have established a separate emergency fund to accumulate 3-6 months living expenses.

Have established a separate set-aside account to accumulate money to cover larger expected expenses that don't occur very often (insurance, taxes, annual vacation, holiday gift fund).

Have one or more: Savings Account, Certificates of Deposit, Money Market Account, U.S. Savings Bonds.

None of the above

2. The Rule of 72 refers to:

A method for estimating how fast money doubles.

A rule for determining future retirement age.

An indicator for determining debt-to-income ratio.

An accounting rule applicable in estimating taxes owed.



Chapter 5. Savings Basics – POST-TEST

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey by indicating whether your financial planning habits and practices are changing as a result of your experience with the Wi\$e Up program.

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(please write all numbers as neatly as possible)

1. My goals for improvement in the area of starting and following a savings plan as suggested in Chapter 5 are: [please check all that apply]

Start “paying myself first” out of my paycheck before I pay my bills by making a deposit to my savings.

To start an emergency fund for the first time or add to an existing one.

To establish a set-aside account (for income and/or expenses)

To open or add to a current savings account.

To open my first Individual Retirement Account (IRA).

To identify ways to reduce expenses so I have more money to save.

2. I plan to put the following goals into action:

	I plan to do this	Does Not Apply to Me
Start “paying myself first” out of my paycheck before I pay my bills.		
Save at least 10% of my income.		
Start putting money into an emergency fund to have 3-6 months’ living expenses.		
Start saving money to pay cash for big-ticket items instead of charging them to a credit card.		
Start saving for a down payment for a house.		
Start saving for a college education (mine or someone in my family).		
Start making as large a payment as possible on my credit card bills.		
Start saving more than I am currently saving towards my retirement.		

3. I plan to increase my savings or investments for retirement by \$_____

per week
per month
per year

4. I plan to increase my savings or investments to meet my other financial goals by \$_____

per week
per month
per year

5. The Rule of 72 refers to:

A method for estimating how fast money doubles

A rule for determining future retirement age

An indicator for determining debt-to-income ratio

An accounting rule applicable in estimating taxes owed

6. How helpful was this Wi\$e Up chapter to you personally?

Extremely helpful

Very helpful

Somewhat helpful

Not helpful at all



Chapter 6. Insurance and Risk Management: Pre-Test

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey.

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(please write all numbers as neatly as possible)

1. Prior to WiSe Up, I had done the following things in my financial life:
[Please mark all that apply. There is no right or wrong answer.]

I am covered by health insurance.

I have life insurance on my life to help my financial dependents if I should die.

I have an automobile and have the auto insurance I need for it.

I am a renter and carry renter's insurance.

I am a renter and do NOT carry renter's insurance.

I am a homeowner and carry homeowner's insurance.

I am a homeowner and do NOT carry homeowner's insurance.

I am covered by disability insurance.

I have long-term care insurance.

My employer offers a wide range of insurance as a benefit of employment.

I am not employed.

None of the above



Chapter 6. Insurance and Risk Management – POST-TEST

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey by indicating whether your financial planning habits and practices are changing as a result of your experience with the WiSe Up program.

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(please write all numbers as neatly as possible)

1. My goals for improvement in the areas covered in Chapter 6 are:
[please check all that apply]

To determine my insurance needs.
To maximize my employee benefits.

2. I plan to put the following goals into action:

	I plan to do this	Does Not Apply to Me
Assess my risks and develop a plan to manage my risks.		
Learn more about the types of insurance I might need.		
Familiarize myself with the insurance options available to me at work as an employee benefit.		
See if I am making the best use of my employer-provided insurance benefits.		
Get renter's insurance.		
Get homeowner's insurance.		

3. How helpful was this Wi\$e Up chapter to you personally?

Extremely helpful

Very helpful

Somewhat helpful

Not helpful at all



Chapter 7. Becoming An Investor: Pre-Test

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey.

(please write all numbers as neatly as possible)

1. Prior to Wi\$e Up, I had done the following things in my financial life:
[Please mark all that apply. There is no right or wrong answer.]

Am saving at least 10% of my income.

Have estimated how much I should be saving/investing for retirement.

Am saving/investing for retirement through my job.

Am saving/investing for retirement through an Individual Retirement Account (IRA) or Roth IRA.

Own one or more of the following: stocks, bonds, mutual funds

Own my own home (note: this does not mean that the home has to be fully paid for in order for you to mark this item)

Looked for ways to cut expenses in order to save/invest more for retirement.

Looked for ways to cut expenses in order to save/invest more for special financial goals.

Been a member of an investment club.

None of the above

2. My employer offers a retirement plan at work. (Please mark only one answer.)

Yes

No

Don't know

Not applicable (not employed)



Chapter 7. Becoming An Investor – POST-TEST

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey by indicating whether your financial planning habits and practices are changing as a result of your experience with the WiSe Up program.

(please write all numbers as neatly as possible)

1. My goals for improvement in the areas covered in Chapter 7 are:
[please check all that apply]

To increase my knowledge about investing.
To develop an action plan for investing my money.

2. I plan to put the following goals into action:

	I plan to do this	Does Not Apply to Me
Estimate how much I should be saving/investing for retirement .		
Start participating in a retirement plan at work.		
Increase my retirement plan contributions at work.		
Open or add to a Roth or Traditional IRA.		
Invest in stocks, bonds or mutual funds for the first time.		
Become a first time homebuyer.		
Change my investment mix as a result of what I have learned.		
Calculate the cost of owning my current mutual funds or those I may invest in by using the calculator tool at the Securities and Exchange Commission (SEC) website.		
Enroll in an investment course to learn more.		
Set a financial website as my browser's opening page.		
Start or join an investment club with friends or colleagues.		

(Please complete the other side.)

3. I plan to increase my savings or investments for retirement by \$_____.
per week
per month
per year

4. I plan to increase my savings or investments to meet my other financial goals by \$_____.
per week
per month
per year

5. How helpful was this Wi\$e Up chapter to you personally?
Extremely helpful
Very helpful
Somewhat helpful
Not helpful at all



Chapter 8. Achieving Financial Security: Pre-Test

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey.

(please write all numbers as neatly as possible)

1. Prior to WiSe Up, I had done the following things in my financial life:

[Please mark all that apply. There is no right or wrong answer.]

- ☐ Made a professional development plan for myself.
- ☐ I started a family.
- ☐ Started saving money for my child/children's college fund.
- ☐ Taught financial literacy to my child/children.
- ☐ Consulted with a financial planner about my financial planning needs.
- ☐ Consulted with an attorney about my estate planning needs.
- ☐ I have a will.
- ☐ None of the above



Chapter 8. Achieving Financial Security - POST-TEST

Your help is needed to provide important information. This information will be used as a guide for making changes to improve this program. Please take a moment to complete this survey by indicating whether your financial planning habits and practices are changing as a result of your experience with the Wi\$e Up program.

(please write all numbers as neatly as possible)

1. My goals for improvement in the areas covered in Chapter 8 are:
[please check all that apply]

To increase my financial security.
To consult with financial experts to develop my plans.
To take specific actions to accomplish my goals.

2. I plan to put the following goals into action:

	I plan to do this	Does Not Apply to Me
Develop a “professional game plan” for my own professional development.		
Save/invest (or add to current savings/investments) for the future education of my child/children.		
Investigate the options best suited for saving for college.		
Nurture my children’s financial literacy knowledge and skills.		
Consult with financial experts to help me achieve financial security.		
Confer with an attorney to identify my estate planning needs.		
Prepare or update my will.		

3. How helpful was this Wi\$e Up chapter to you personally?

Extremely helpful

Very helpful

Somewhat helpful

Not helpful at all

APPENDIX C

Classification of post-post survey questions

Type of question	Question
Debt	I calculated my debt-to-income ratio (the percentage of my take-home pay that goes to pay non-mortgage debt).
Debt	I have reduced my debt since taking the Wi\$eUp course
Debt	I reduced my debt-to-income ratio (the percentage of my take-home pay that goes to pay non-mortgage debt).
Debt	I reduced the dollar amount of my debt
Debt: Credit	I am now making as large a payment as possible on my credit card bills
Debt: Credit	I obtained a copy of my credit reports and examined them for accuracy
Debt: Credit	I now track my credit card purchases
Debt: Credit	<p>When I pay my credit card bills</p> <ul style="list-style-type: none"> <input type="checkbox"/> I make the minimum payment on most of my credit cards <input type="checkbox"/> I make more than the minimum payment on most of my credit cards. <input type="checkbox"/> I pay off my credit balances in full each month. <input type="checkbox"/> I pay off debts with the highest interest rate first. <p>I consolidated my debts at a lower interest rate.</p>
Saving	I am saving at least 10% of my income.
Saving	I have started an emergency fund to accumulate 3-6 months' living expenses and have made two or more deposits to it.

Saving	I am now saving money to pay cash for one or more specific “big-ticket” items and am waiting to buy them with cash instead of charging them to my credit card.
Saving	I have started to save for a college education (for me or someone in my family).
Saving: Cash flow	I now “pay myself first” from my paycheck before I pay my bills and save or invest that money.
Saving: Cash flow	I made/updated my list of credit cards, account numbers, and credit card company contact telephone numbers
Saving: Financial experience	I have set a financial website as my browser’s opening page
Saving: Financial Experience	I now shred my documents to avoid identity theft
Saving: Financial experience	I have started to save for a down payment on a house
Saving: Financial experience	I became a first-time homebuyer
Saving: Investment	I increased my savings or investment for retirement
Saving: Investment	I increased my savings or investments to meet my other financial goals
Saving: Investment/Retirement	I have increased the amount of money that I am saving for retirement
Saving: Investment/retirement	I have estimated how much I should be saving/investing for retirement

Saving: Investment/Retirement	I have started to participate in a retirement plan at work
Saving: Investment/Retirement	I have increased my retirement plan contributions at work
Saving: Investment/Retirement	I have opened or added to a Roth IRA or traditional IRA (Individual Retirement Account).
Saving: Investment/Retirement	I have invested in stocks, bonds, or mutual funds for the first time.
Saving: Investment/retirement	I have changed my investment mix as a result of what I have learned
Saving: Investment/Retirement	I have calculated the cost of owning mutual funds by using the calculator tool at the Securities & Exchange Commission (SEC) website
Saving: Investment/Retirement	I have enrolled in an investment course
Saving: Investment/Retirement	I have started or joined an investment club